Two-circuit Limit Switch/Long-life Two-circuit Limit Switch
WL/WLM

Wide Range of Two-circuit Switches; Select One for the Operating Environment/ Application

- A wide selection of models are available, including the overtravel models with greater OT, indicator-equipped models for checking operation, low-temperature models, heat-resistant models, and corrosion-proof models.
- Microload models are added to the product lineup.
- Meets EN/IEC standards (only Switches with ground terminals and prewired connectors with DC specifications).
- Switches with ground terminals and prewired connectors with DC specifications have the CE marking.

Features

Standard Models

Many Variations in Standard Limit Switches

A Wide Range of Models

The WL Series provides a complete range of Limit Switches with a long history of meeting user needs. Select environment-resistant specifications, actuators for essentially any workpiece, operating sensitivity matched to the workpiece, operation indicators to aid operation and maintenance, and various wiring specifications.

Environment-resistant Models

Select from Six Types of Environment Resistance

The series includes Airtight Switches, Hermetic Switches, Heat-resistant Switches, Low-temperature Switches, Corrosion-proof switches, and Weather-proof Switches. Select the one required by the onsite environment.

Spatter-prevention Models

Excellent Performance on Arc Welding Lines or Sites with Spattering Cutting Powder

Ideal for Welding Sites

Stainless steel and resins that resist adhesion of spatters are used to prevent troubles caused by zinc powder generated during welding.

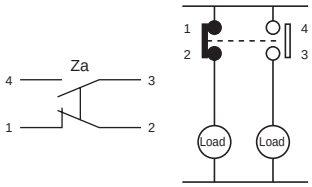
Long-life Models

Mechanical Endurance of 30 Million Operations

Long-life Models for High-frequency Applications

Long life has been achieved by increasing the resistance to friction and creating better sliding properties in the head mechanism. Greater visibility is provided when setting with a fluorescent display for setting the stroke.

Features Common to All Models



DPDB Operation

The double-pole, double-break structure ensures circuit braking.

Waterproof to IP67

O-rings, cover seals, and other measures provide a waterproof, drip-proof structure (IP67).

Approved Standards to Aid Export Machines

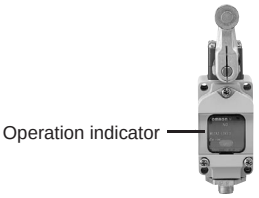
Various WL/WLM switches are approved by UL, CSA, TÜV, EN/IEC, and CCC making them ideal for export machines.

High-precision Models Available in All Switch Types; Ideal for Position Control

High-precision models achieve a very small movement to operation (approx. 5°) and a repeat accuracy that is twice that of basic models.

Operation Indicators for Easier Daily Inspections (See note.)

Confirm operation with a neon lamp or LED for easier startup confirmations and maintenance.



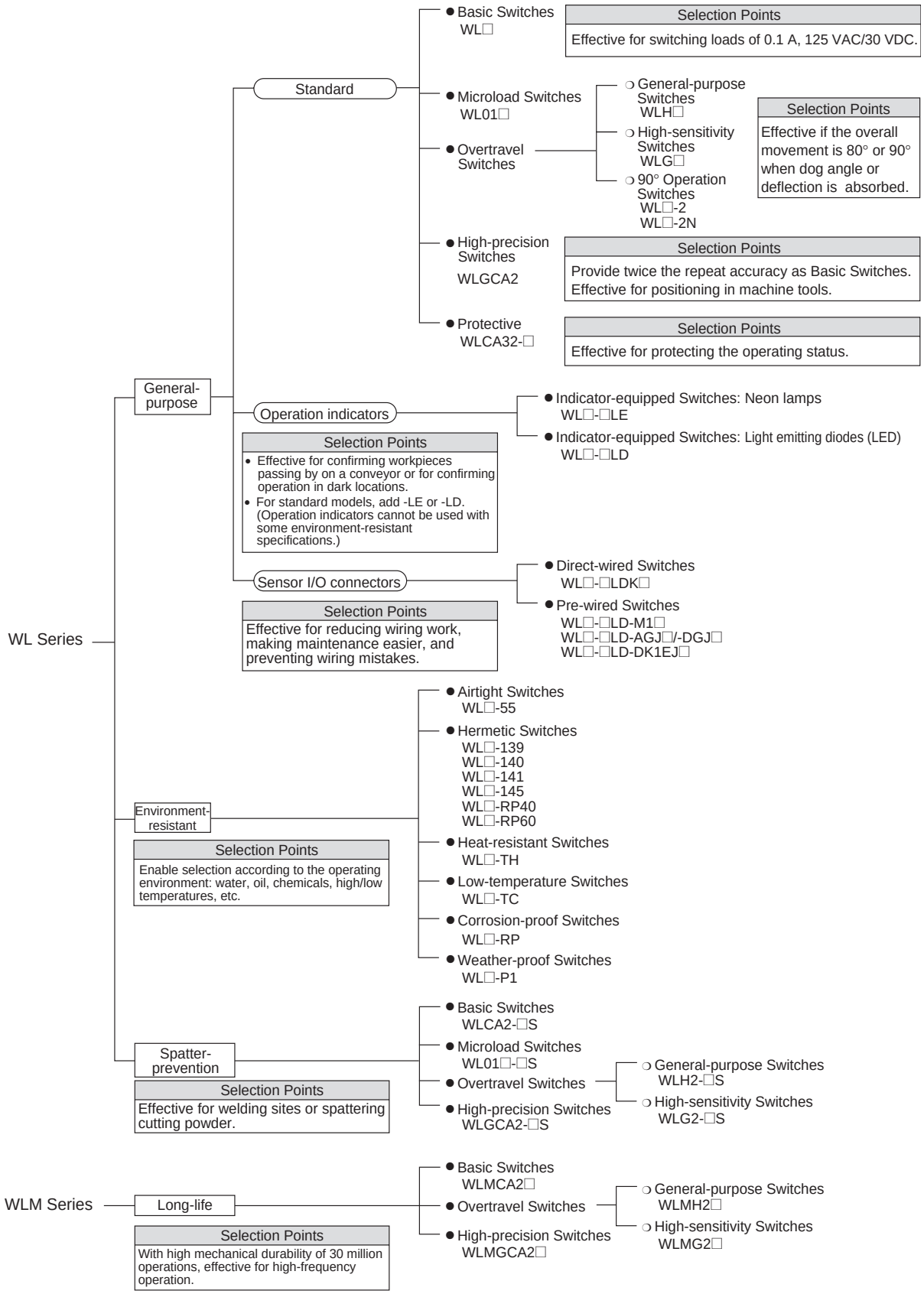
Note: Specify the type of operation indicator for general-purpose models. Provided on standard models for spatter-prevention and long-life models.

Models with Connectors Provided with All Switch Types

Reduced wiring with one-touch connection. Connectors that also make Switch replacement easier are provided with direct-wired and prewired models).

Product Configuration

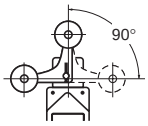
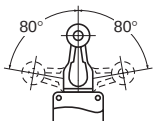
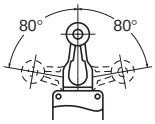
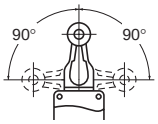
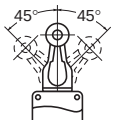
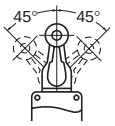
■ Selection by Purpose



■ Tables of Models

General-purpose, Spatter-prevention, and Long-life Switches

Actuators/Heads

Type	General-purpose	Actuators			Features	Head specifications		Spatter-prevention	Long-life
	Model	Roller lever	Plunger	Flexible rod	Total travel (TT)	One-side operation	Head mounting	Model	Model
Basic	WL□	Possible	Possible	Possible	• With a Roller Lever 	Possible (See note 1.) (Except for long-life models.)	Any of 4 directions	WLCA2-□S	WLMCA2□
General-purpose Overtravel	WLH□	Possible	---	---	• Overtravel is large, making setting the dog easier. • Mounting is compatible with WLH2. 	Not possible (See note 2.)	Any of 4 directions	WLH2-□S	WLH2□
High-sensitivity Overtravel	WLG□	Possible	---	---	• Operation is highly sensitive with only 10° pretravel. • Overtravel is large, making setting the dog easier. • Mounting is compatible with WLG2. 	Not possible (See note 2.)	Any of 4 directions	WLG2-□S	WLMG2□
Overtravel, 90° operation	WL□-2	Possible	---	---	• Overtravel is large, making setting the dog easier. • Mounting is compatible with WLCA2-2. 	Not possible (See note 2.)	Any of 4 directions	---	---
	WL□-2N	Possible	---	---		Possible (See note 1.)	Either of 2 directions		
High-precision	WLGCA2	Possible	---	---	• Repeat accuracy is twice that of basic models. • Operation is highly sensitive with only 5° pretravel. • Ideal for positioning, e.g., with machine tools. 	Not possible (See note 2.)	Any of 4 directions	WLGCA2-□S	WLMGCA2□
Protective	WLCA32-□	Possible	---	---	• When the dog throws the lever, the output is reversed and the reversed output is held even after the dog passed. The original status is returned to only after the dog passed. 	---	Any of 4 directions	---	---

Note 1. One-side operation means that three operational directions can be selected electrically, according to the change in direction of the operating plunger. The operating plunger is set for operation on both sides before delivery.

2. Those models for which one-side operation is impossible can only operate on both sides.

Connectors and Conduits

Wiring type	General-purpose	Connector/conduit specifications	Spatter-prevention	Long-life
	Model		Model	Model
Direct-wired connector	WL□-□LDK□	• SC-2F/-4F Connector built-in	---	WLM□-LDK□
Pre-wired connector	WL□-□LD-M1□ WL□-□LD-□GJ□ WL□-□LD-DK1EJ□	• XS2H-series Pre-wired Connector built-in	WL□-□S-M1□J-1 WL□-□S-DGJS03	WLM□-LD-M1J WLM□-LD-□GJ□
Conduit (screw terminal)	WL□-□ WL□-□G1□ WL□-□G□ WL□-□Y□ WL□-□TS□	• G1/2 with no ground terminal • G1/2 with ground terminal • Pg13.5 with ground terminal • M20 with ground terminal • 1/2 14NPT with ground terminal	---	WLM□-LD --- --- --- ---

Environment-resistant Switches

Type / Item / Model		Environment-resistant		
		Application	Environment-resistant construction	Applicable models
Airtight seal	WL□-55	For uses in locations subject to cutting oil or water	Uses the W-10FB3-55 Airtight Built-in Switch. **Note:** Use the SC Connector for the conduit opening.	All models except the low-temperature and heat-resistant models **Note:** Models can be produced using standard actuators.
Hermetic seal (Molded terminals/ Anti-coolant)	WL□-139 WL□-140 WL□-141 WL□-145 WL□-RP40 WL□-RP60		Refer to page 55 for information on the environment-resistant construction of Switches with Hermetic Seals.	All models except the low-temperature and heat-resistant models **Note:** Models can be produced using standard actuators. Only the WLCA2, WLGCA2, or WLH2 can be produced for the WL□-141 and WL□-145.
Low-temperature (See note.)	WL□-TC	Can be used at a temperature of –40°C (operating temperature range: –40 to 40°C), but cannot withstand icing.	Uses a general-purpose built-in switch. Silicone rubber is used for rubber parts such as the O-ring, gasket, etc.	All models except airtight seal, hermetic seal, heat-resistant, corrosion-proof, and indicator-equipped models
Heat-resistant (See note.)	WL□-TH	Can be used in temperatures of 120°C (operating temperature range: 5 to 120°C).	Uses a special built-in switch made from heat-resistant resin. Silicone rubber is used for rubber parts such as the O-ring, gasket etc.	All models except airtight seal, hermetic seal, heat-resistant, corrosion-proof, and indicator-equipped, nylon roller (WLCA2-26N), seal roller models, and resin rod (WLNJ-2) models
Corrosion-proof	WL□-RP	For use in locations subject to corrosive gases and chemicals.	Diecast parts, such as the switch box, are made of corrosion-proof aluminum. Rubber sealing parts are made of fluorine rubber which aids in resisting oil, chemicals and adverse weather conditions. Exposed nuts and screws (except the actuator section) are made of stainless steel. Moving and rotary parts such as rollers are made of sintered stainless steel or stainless steel.	All models except overtravel (90° operation), fork lever lock (WLCA32-41 to -43), low-temperature, heat-resistant, and indicator-equipped models
Weather-proof	WL□-P1	For use in parking lots and other outdoor locations.	Rubber parts are made from silicone rubber, which has a high-tolerance to deterioration over time and changes in temperature. Rollers are made of stainless steel to improve corrosion resistance. Exposed nuts and screws are made of stainless steel.	Only general-purpose overtravel (WLH2/12) and high-sensitivity overtravel (WLG2/12) models (excluding heat-resistant models).

Note: Weather Resistance, Cold Resistance, and Heat Resistance
Silicon rubber is used to increase resistance to weather, cold, and heat. Silicon rubber, however, can generate silicon gas. (This can occur at room temperature, but the amount of silicon gas generated increases at higher temperatures.) Silicon gas will react as a result of arc energy and form silicon oxide (SiO_2). If silicon oxide accumulates on the contacts, contact interference can occur and can interfere with the device. Before using a Switch, test it under actual application conditions (including the environment and operating frequency) to confirm that no problems will occur in actual.

■ Selection Guide

With the WL Series, OMRON will combine the switch, Actuator, and wiring method required to build the ideal switch for your application.

The WL Series consists of four basic types: General-purpose, Environment-resistant, Spatter-prevention, and Long-life Switches. WLCA2 Switches can be used for the most common applications.

According to Operating Environment

	Environment	Key specifications	Models	
Ambient operating temperature	Normal	–10°C 80°C Water-resistant to IP67.	WL□ WLM□	General-purpose Switches Long-life Switches
	High-temperature	5°C 120°C To increase heat resistance, the rubber material (silicon rubber) and the material of the built-in switch have been changed.	WL□-TH	Heat-resistant Switches (See note.)
	Low-temperature	–40°C 40°C To increase resistance to cold, silicon rubber and other measures are used.	WL□-TC	Low-temperature Switches (See note.)
Operating environment	Outdoors	Rubber parts are made from silicone rubber, which has a high-tolerance to deterioration over time and changes in temperature. Rollers are made of stainless steel to improve corrosion resistance. Exposed nuts and screws are made of stainless steel.	WL□-P1	Weather-proof Switches (See note.)
	Chemicals and oil	Corrosion-proof aluminum diecast has been used for the housing, fluorine rubber has been used for rubber parts, and stainless steel has been used for screws and nuts (except for actuator) to increase resistance to oils, chemicals, and weather.	WL□-RP	Corrosion-proof Switches (See note.)
	Water drops and mist	Uses an airtight built-in switch.	WL□-55	Airtight Switches (See note.)
	Constant water drops and mist	Cables attached. Uses a general-purpose built-in switch. The case cover and conduit opening are molded from epoxy resin to increase the seal. The cover cannot be removed.	WL□-139	Hermetic, Molded-terminal Switches (See note.)
		Cables attached. Uses an airtight built-in switch. The case cover and box interior are molded from epoxy resin to increase the seal. The cover cannot be removed. The SC connector can be removed, so it is possible to use flexible conduits for the cable.	WL□-RP40	Hermetic, Molded-terminal Switches (See note.)
		Cables attached. Uses an airtight built-in switch. The cover screws, case cover, box interior, and conduit opening are molded from epoxy resin to increase the seal. (The cover cannot be removed.)	WL□-140	Hermetic, Molded-terminal Switches (See note.)
	Constant water drops or splattering cutting powder	Cables attached. Uses an airtight built-in switch. The cover screws, case cover, box interior, conduit opening, box head, and head screws are molded from epoxy resin to increase the seal. (The cover cannot be removed.) The Head opening is protected from cutting powder. -141: The Head section is molded from epoxy resin; Head direction cannot be changed. -145: The Head section is molded from epoxy resin; Head can be in any of 4 directions.	WL□-141, -145 (Only the WLCA2, WLG2, WLGCA2, and WLH2 can be produced.)	Hermetic, Molded-terminal Switches (See note.)
	Coolant	Cables attached. Uses an airtight built-in switch. The case cover, box interior, conduit opening, and head screws are molded from epoxy resin to increase the seal. (The cover cannot be removed.) Rubber parts are made from fluorine rubber to increase resistance to coolant.	WL□-RP60	Hermetic, Anti-coolant Switches (See note.)
	Spattering from welding	To prevent spatter during welding, a heat-resistant resin is used for the indicator cover and screws and rollers are all made from stainless steel.	WL□-S	Spatter-prevention Switches

Note: Not all functions can be combined with environment-resistant switches. Refer to the applicable models on the previous page.

According to Application Conditions

	Conditions	Key specifications	Models
Load	Switching standard loads	10 A at 125,250, or 500 VAC 0.8 A at 125 VDC 0.4 A at 250 VDC	WL□ General-purpose Switches WL□-S Spatter-prevention Switches WLM□ Long-life Switches
Load	Switching microloads	0.1 A at 125 VAC, resistive load 0.1 A at 30 VDC, resistive load	WL01□ General-purpose Microload Switches WL01□-S Spatter-prevention Microload Switches
Durability	Normal durability	Mechanical: 15 million operation min. (10 million operation min. for overtravel general-purpose or high-sensitivity models or flexible rod models)	WL□ General-purpose Switches WL□-S Spatter-prevention Switches
Durability	Long-life	Mechanical: 30 million operation min.	WLM□ Long-life Switches

According to Ease of Installation and Maintenance

	Conditions	Key specifications	Models
Operation indicator	Daily inspections and maintenance checks	Switching light-ON between operating/not operating. (Switching not possible for models with molded terminals.) Neon lamp 125 VAC, 250 VAC	WL□-LE General-purpose, Indicator-equipped (Neon Lamp) Switches WL□-LES Spatter-prevention, Indicator-equipped (Neon Lamp) Switches
Operation indicator		Switching light-ON between operating/not operating. (Switching not possible for models with molded terminals.) LED 10 to 115 VAC/DC	WL□-LD General-purpose, Indicator-equipped (LED) Switches WL□-LDS Spatter-prevention, Indicator-equipped (LED) Switches
Wiring specification	Screw tightening and installation	Screw terminals. No ground terminal. Conduit size: G½	WL□ General-purpose Switches WLM□ Long-life Switches
Wiring specification		Screw terminals. Ground terminal. Conduit size: 4 sizes	WL□ General-purpose Switches
Wiring specification	One-touch connector attachment	Direct-wired connector, 2-core. Greatly reduces wiring work. Waterproof to IP67.	WL□-□LDK13 General-purpose, Direct-wired Connector Switches WLM□-LDK13 Long-life, Direct-wired Connector Switches
Wiring specification		Direct-wired connector, 4-core. Greatly reduces wiring work. Waterproof to IP67.	WL□-□LDK43 General-purpose, Direct-wired Connector Switches WLM□-LDK43 Long-life, Direct-wired Connector Switches
Wiring specification	Connector attachment in control and relay boxes	Pre-wired connector, 2-core. Greatly reduces wiring work. Waterproof to IP67.	WL□-□LD-M1J General-purpose, Pre-wired Connector Switches WL□-□S-M1J-1 Spatter-prevention, Pre-wired Connector Switches WLM□-LD-M1J Long-life, Pre-wired Connector Switches
Wiring specification		Pre-wired connector, 4-core. Greatly reduces wiring work. Waterproof to IP67.	WL□-□LD-□GJO3 General-purpose, Pre-wired Connector Switches WL□-□S-□GJSO3 Spatter-prevention, Pre-wired Connector Switches WLM□-LD-□GJO3 Long-life, Pre-wired Connector Switches

According to Form of Operation

	Detection object	Key specifications	Models	
Operation angles	General	TT (total travel) 45° 45°; PT (pretravel) 15°	WLCA2 WLCA2-□S WLMCA2	General-purpose Switches Spatter-prevention Switches Long-life Switches
	Passing dogs	80° 80°; 15°	WLH2 WLH2-□S WLMH2	General-purpose Switches Spatter-prevention Switches Long-life Switches
	Passing dogs, high sensitivity	80° 80°; 10°	WLG2 WLG2-□S WLMG2	General-purpose Switches Spatter-prevention Switches Long-life Switches
	Passing dogs	90° 90°; WLCA2-2 25°; WLCA2-2N 20°	WLCA2-2 WLCA2-2N	General-purpose Switches General-purpose Switches
	High precision	45° 45°; 5°	WLGCA2 WLGCA2-□S WLMGCA2	General-purpose Switches Spatter-prevention Switches Long-life Switches
Actuators	Dogs and workpieces (Mounts in any of 4 directions)	R38 • Short lever • One-Horizontal operation possible. (WLCA□ only) • Head mounts in any of 4 directions.	WL□2 WL□2-□S WLM□2	Roller Lever Actuators Roller Lever Actuators Roller Lever Actuators
		R50 • Medium lever • One-Horizontal operation possible. (WLCA□ only) • Head mounts in any of 4 directions.	WL□2-7	Roller Lever Actuators
		R63 • Long lever • One-Horizontal operation possible. (WLCA□ only) • Head mounts in any of 4 directions.	WL□2-8	Roller Lever Actuators
	Adjustable between dog and lever	R25 to 89 • One-Horizontal operation possible. (WLCA□ only) • Head mounts in any of 4 directions.	WL□12	Adjustable Roller Lever Actuators
	Dogs or workpieces with large deflection	25 to 140 • One-Horizontal operation possible. (WLCL only) • Head mounts in any of 4 directions.	WL□L	Adjustable Rod Lever Actuators
		350 to 380 • One-Horizontal operation not possible. • Head mounts in any of 4 directions.	WLHAL4	Adjustable Rod Lever Actuator
		427.5 • One-Horizontal operation not possible. • Head mounts in any of 4 directions.	WLHAL5	Rod Spring Lever Actuator
	Round-trip operation of passing dogs	• Head mounts in any of 4 directions.	WLCA32-41	Fork Lever Lock Actuator
		• Head mounts in any of 4 directions.	WLCA32-42	Fork Lever Lock Actuator
		• Head mounts in any of 4 directions.	WLCA32-43	Fork Lever Lock Actuator
		• Head mounts in any of 4 directions.	WLCA32-44	Fork Lever Lock Actuator
	Cams or workpieces with vertical movement		WLD	Top Plunger Actuator
		• Head mounts in any of 4 directions.	WLSD	Horizontal Plunger Actuator
			WLD3	Top-ball Plunger Actuator
		• Head mounts in any of 4 directions.	WLSD3	Horizontal-ball Plunger Actuator
		• Available in sealed models. (WLD28□)	WLD2 WLD28	Top-roller Plunger Actuator Sealed Top-roller Plunger Actuator
			WLSD2	Horizontal-roller Plunger Actuator

Model Number Structure

■ Model Number Legend

General-purpose and Environment-resistant Switches

WL□□-□□□□□□□□

1 2 3 4 5 6 7 8 9 10

1. Electrical Rating

Blank	Standard
01	Microload

Note: Dimensions are the same as the standard models.

3. Environment-resistant Model Specifications

Blank	Standard
RP	Corrosion-proof (See note 2.)
P1	Weather-proof (See note 2.)

Note 1: Dimensions are the same as the standard environment-resistance models.
2. Refer to page 37 for applicable models.

4. Built-in Switch Type

Blank	Standard
55	Hermetically sealed

Note: Dimensions are the same as the standard built-in switch models.

5. Temperature Specifications

Blank	Standard: –10°C to 80°C
TH	Heat-resistant: 5°C to 120°C (See note 2.)
TC	Low-temperature: –40°C to 40°C (See note 2.)

Note 1: Dimensions are the same as the standard models.
2. Refer to page 37 for applicable models.

7. Conduit Size, Ground Terminal Specifications (See note 1.)

Blank	G$^1/_2$ without ground terminal
G1	G$^1/_2$ with ground terminal
G	Pg13.5 with ground terminal
Y	M20 with ground terminal
TS	$^1/_2$-14NPT with ground terminal

Note 1: Models with ground terminals are approved by EN/IEC (CE marking).
2. Dimensions are the same as the standard models.

2. Actuator and Head Specifications

Symbol	Actuator type	Switch without lever
CA	Roller lever: Standard model R38	WLRCA2
CA2-7	Roller lever: Standard model R50	WLRCA2
CA2-8	Roller lever: Standard model R63	WLRCA2
H2	Roller lever: General-purpose overtravel model, 80°	WLRH2
G2	Roller lever: High-sensitivity overtravel, 80°	WLRG2
CA2-2	Roller lever: Overtravel, 90°	WLRCA-2-2
CA2-2N	Roller lever: Overtravel, 90°	WLRCA2-2N
GCA2	Roller lever: High-precision R38	WLRGCA2
CA12	Adjustable roller lever: Standard	WLRCA2
H12	Adjustable roller lever: General-purpose overtravel model, 80°	WLRH2
G12	Adjustable roller lever: High-sensitivity overtravel, 80°	WLRG2
CA12-2	Adjustable roller lever: Overtravel, 90°	WLRCA-2-2
CA12-2N	Adjustable roller lever: Overtravel, 90°	WLRCA2-2N
CL	Adjustable rod lever: Standard, 25 to 140	WLRCL
HL	Adjustable rod lever: General-purpose overtravel model, 80°, 25 to 140 mm	WLRH2
HAL4	Adjustable rod lever: General-purpose overtravel model, 80°, 350 to 380 mm	WLRH2
GL	Adjustable rod lever: High-sensitivity overtravel, 80°, 25 to 140 mm	WLRG2
CL-2	Adjustable rod lever: Overtravel, 90°, 25 to 140 mm	WLRCA-2-2
CL-2N	Adjustable rod lever: Overtravel, 90°, 25 to 140 mm	WLRCA2-2N
HAL5	Rod spring lever: General-purpose overtravel model, 80°	WLRH2
CA32-41	Fork lever lock: Protective, WL-5A100	WLRCA32
CA32-42	Fork lever lock: Protective, WL-5A102	WLRCA32
CA32-43	Fork lever lock: Protective, WL-5A104	WLRCA32
D	Plunger: Top plunger	---
D2	Plunger: Top-roller plunger	---
D28	Plunger: Sealed top-roller plunger	---
D3	Plunger: Top-ball plunger	---
SD	Plunger: Horizontal plunger	---
SD2	Plunger: Horizontal-roller plunger	---
SD3	Plunger: Horizontal-ball plunger	---
NJ	Flexible rod: Coil spring	---
NJ-30	Flexible rod: Coil spring, multi-wire	---
NJ-2	Flexible rod: Coil spring, resin rod	---
NJ-S2	Flexible rod: Steel wire	---

6. Hermetic Model Specifications

Blank	No cables or molding
139	General-purpose built-in switch with cables attached and molded conduit opening and cover (cover cannot be removed). (See note.)
140	Airtight built-in switch with cables attached and molded conduit opening, cover, and box interior cover screws (cover cannot be removed). (See note.)
141	Airtight built-in switch with cables attached and molded conduit opening, cover, head, box interior, cover screws, and head screws (cover cannot be removed, Head direction cannot be changed). The Head opening is created to protect it from cutting powder. (See note.)
145	Airtight built-in switch with cables attached and molded conduit opening, cover, box interior, and cover screws (cover cannot be removed, Head can be mounted in any of 4 directions). The Head opening is created to protect it from cutting powder. (See note.)
RP40	Airtight built-in switch with cables attached and molded cover and box interior (cover cannot be removed, Head direction can be changed). SC Connector can be removed, so it is possible to use flexible conduits for the cable. (See note.)
RP60	Airtight built-in switch with cables attached, fluorine rubber used, and molded conduit opening, cover, and box interior (cover cannot be removed, Head direction cannot be changed). (See note.)

Note: Refer to page 37 for applicable models.

8. Indicator Type

Symbol	Element	Voltage	Leakage current
Blank	No indicator		
LE	Neon lamp	125 to 250 VAC	Approx. 0.6 to 1.9 mA
LD	LED	10 to 115 VAC/DC	Approx. 0.5 mA

Note: Dimensions are the same for both LE and LD models.

9. Indicator Wiring

2	NC connection: Light-ON when operating
3	NO connection: Light-ON when not operating

Note: Include the indicator wiring specification only when a (6) hermetic seal and (8) operation indicator have been selected.

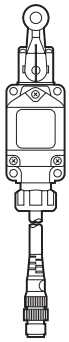
10. Lever Type

Blank	Standard lever
A	Double nut lever

General-purpose Sensor I/O Connector Switches

Direct-wired Connector

Pre-wired Connector



WL□□-□LD□
1 2 3 4 5

1. Electrical Rating

Blank	Standard
01	Microload

Note: Dimensions are the same as the standard models.

2. Actuator Type

CA2	Roller lever: Standard model
GCA2	Roller lever: High-precision model
H2	Roller lever: General-purpose overtravel model
G2	Roller-lever: High-sensitivity overtravel
D2	Top-roller plunger
D28	Sealed top-roller plunger

3. Built-in Switch Type

Blank	Standard
55	Hermetically sealed

Note: Dimensions are the same as the standard models.

4. Indicator Type

LD	LED, AC/DC (10 to 115 V)

5. Wiring Specifications

K13A	Direct-wired Connector (2-core: AC, NO wiring, connector pins No. 3, 4)
K13	Direct-wired Connector (2-core: DC, NO wiring, connector pins No. 3, 4)
K43A	Direct-wired Connector (4-core: AC)
K43	Direct-wired Connector (4-core: DC)
-M1J (See note 1.)	Pre-wired Connector (See note 2.) (2-core: DC, NO wiring, connector pins No. 3, 4)
-M1GJ (See note 1.)	Pre-wired Connector (See note 2.) (2-core: DC, NO wiring, connector pins No. 1, 4)
-M1JB	Pre-wired Connector (See note 2.) (2-core: DC, NC wiring, connector pins No. 3, 2)
-AGJ03	Pre-wired Connector (See note 2.) (4-core, AC)
-DGJ03 (See note 1.)	Pre-wired Connector (See note 2.) (4-core, DC)
-DK1EJ03 (See note 1.)	Pre-wired Connector (See note 2.) (3-core: DC, NO wiring, connector pins No. 2, 3, 4)

Note 1: Models with pre-wired connectors and DC specifications have EN/IEC approval (CE marking).
2. With 0.3-m cable attached.

Spatter-prevention Switches

WL□□-□□S□
1 2 3 4 5

1. Electrical Rating

Blank	Standard
01	Microload

Note: Dimensions are the same as the standard models.

2. Actuator Type

CA2	Roller lever: Standard model
GCA2	Roller lever: High-precision model
H2	Roller lever: General-purpose Overtravel model
G2	Roller lever: High-sensitivity Overtravel model
D28	Sealed top-roller plunger

3. Built-in Switch Type

Blank	Standard
55	Hermetically sealed

Note: Dimensions are the same as the standard built-in switch models.

4. Indicator Type

LD	LED, AC/DC
LE	Neon lamp

Note: Dimensions are the same for both LE and LD models.

5. Wiring Specifications

-M1J-1 (See note 1.)	Pre-wired Connector (See note 2.) (2-core: DC, NO wiring, connector pins No. 3, 4)
-M1GJ-1 (See note 1.)	Pre-wired Connector (See note 2.) (2-core: DC, NO wiring, connector pins No. 1, 4)
-DGJS03 (See note 1.)	Pre-wired Connector (See note 2.) (4-core: DC)

Note 1: Models with pre-wired connectors and DC specifications are approved by EN/IEC (CE marking) except for LE Models (Neon Lamp Models).
2. With 0.3-m cable attached.

Long-life Switches

WLM□-LD□
1 2 3

1. Actuator

CA2	Roller lever: Standard model
GCA2	Roller lever: High-precision model
H2	Roller lever: General-purpose overtravel model
G2	Roller lever: High-sensitivity overtravel model

2. indicator Type

LD	LED, AC/DC (10 to 115 V)

3. Wiring Specifications

Blank	Screw terminal: G1/2 conduit
K13A	Direct-wired Connector: 2-core, AC
K13	Direct-wired Connector: 2-core, DC
K43A	Direct-wired Connector: 4-core, AC
K43	Direct-wired Connector: 4-core, DC
-M1J	Pre-wired Connector: 2-core, DC (See note.)
-AGJ03	Pre-wired Connector: 4-core, AC (See note.)
-DGJ03	Pre-wired Connector: 4-core, DC (See note.)

Note: With 0.3-m cable attached.

Ordering Information

■ List of Models

General-purpose Switches

Standard Switches

Note: Models are also available with ground terminals.

Item			Lever type: Roller lever R38	Roller lever R50	Roller lever R63
			Model	Model	Model
Basic		Standard load	WLCA2	WLCA2-7	WLCA2-8
		Microload	WL01CA2	WL01CA2-7	WL01CA2-8
Overtravel	General-purpose	Standard load	WLH2	---	---
		Microload	WL01H2	---	---
	High-sensitivity	Standard load	WLG2	---	---
		Microload	WL01G2	---	---
	90° operation	Standard load	WLCA2-2	---	---
		Microload	WL01CA2-2	---	---
		Standard load	WLCA2-2N	---	---
		Microload	WL01CA2-2N	---	---
High-precision		Standard load	WLGCA2	---	---
		Microload	WL01GCA2	---	---

Item			Lever type: Adjustable roller lever	Adjustable rod lever 25 to 140mm	Adjustable rod lever 350 to 380mm	Rod spring lever
			Model	Model	Model	Model
Basic		Standard load	WLCA12	WLCL	---	---
		Microload	WL01CA12	WL01CL	---	---
Overtravel	General-purpose	Standard load	WLH12	WLHL	WLHAL4	WLHAL5
		Microload	WL01H12	WL01HL	---	---
	High-sensitivity	Standard load	WLG12	WLGL	---	---
		Microload	WL01G12	WL01GL	---	---
	90° operation	Standard load	WLCA12-2	WLCL-2	---	---
		Microload	WL01CA12-2	---	---	---
		Standard load	WLCA12-2N	WLCL-2N	---	---
		Microload	WL01CA12-2N	WL01CL-2N	---	---

Item			Lever type: Fork lever lock (with WL-5A100 Plastic Roller Lever)	Fork lever lock (with WL-5A102 Plastic Roller Lever)	Fork lever lock (with WL-5A104 Plastic Roller Lever)
			Model	Model	Model
Protective		Standard load	WLCA32-41	WLCA32-42	WLCA32-43
		Microload	WL01CA32-41	WL01CA32-42	WL01CA32-43

Item			Lever type: Top plunger	Top-roller plunger	Sealed top-roller plunger	Top-ball plunger
			Model	Model	Model	Model
Basic		Standard load	WLD	WLD2	WLD28	WLD3
		Microload	WL01D	WL01D2	WL01D28	WL01D3

Item			Lever type: Horizontal plunger	Horizontal-roller plunger	Horizontal-ball plunger
			Model	Model	Model
Basic		Standard load	WLSD	WLSD2	WLSD3
		Microload	WL01SD	WL01SD2	WL01SD3

Item			Lever type: Coil spring (spring diameter: 6.5)	Coil spring (spring diameter: 4.8)	Coil spring (spring diameter: 8)	Steel wire (wire diameter: 1)
			Model	Model	Model	Model
Basic		Standard load	WLNJ	WLNJ-30	WLNJ-2	WLNJ-S2
		Microload	WL01NJ	WL01NJ-30	WL01NJ-2	WL01NJ-S2

General-purpose Switches

Indicator-equipped Switches

Item			Lever type: Roller lever R38  Model	Roller lever R50  Model	Roller lever R63  Model	Adjustable roller lever  Model
Basic		Neon lamp	WLCA2-LE	WLCA2-7LE	WLCA2-8LE	WLCA12-LE
		LED	WLCA2-LD	WLCA2-7LD	WLCA2-8LD	WLCA12-LD
Overtravel	General-purpose	Neon lamp	WLH2-LE	---	---	WLH12-LE
		LED	WLH2-LD	---	---	WLH12-LD
	High-sensitivity	Neon lamp	WLG2-LE	---	---	WLG12-LE
		LED	WLG2-LD	---	---	WLG12-LD
	90° operation	Neon lamp	WLCA2-2LE	---	---	WLCA12-2LE
		LED	WLCA2-2LD	---	---	WLCA12-2LD
		Neon lamp	WLCA2-2NLE	---	---	WLCA12-2NLE
		LED	WLCA2-2NLD	---	---	WLCA12-2NLD
High-precision		Neon lamp	WLGCA2-LE	---	---	---
		LED	WLGCA2-LD	---	---	---

Item			Lever type: Adjustable rod lever 25 to 140 mm  Model	Adjustable rod lever 350 to 380 mm  Model	Rod spring lever  Model
Basic		Neon lamp	WLCL-LE	---	---
		LED	WLCL-LD	---	---
Overtravel	General-purpose	Neon lamp	WLHL-LE	WLHAL4-LE	WLHAL5-LE
		LED	WLHL-LD	WLHAL4-LD	WLHAL5-LD
	High-sensitivity	Neon lamp	WLGL-LE	---	---
		LED	WLGL-LD	---	---
	90° operation	Neon lamp	WLCL-2LE	---	---
		LED	WLCL-2LD	---	---
		Neon lamp	WLCL-2NLE	---	---
		LED	WLCL-2NLD	---	---

Item		Lever type: Fork lever lock (with WL-5A100 Plastic Roller Lever)  Model	Fork lever lock (with WL-5A102 Plastic Roller Lever)  Model	Fork lever lock (with WL-5A104 Plastic Roller Lever)  Model
Protective	Neon lamp	WLCA32-41LE	WLCA32-42LE	WLCA32-43LE
	LED	WLCA32-41LD	WLCA32-42LD	WLCA32-43LD

Item		Lever type: Top plunger  Model	Top-roller plunger  Model	Sealed top-roller plunger  Model	Top-ball plunger  Model
Basic	Neon lamp	WLD-LE	WLD2-LE	WLD28-LE	WLD3-LE
	LED	WLD-LD	WLD2-LD	WLD28-LD	WLD3-LD

Item		Lever type: Horizontal plunger  Model	Horizontal-roller plunger  Model	Horizontal-ball Plunger  Model	Coil spring (spring diameter: 6.5)  Model
Basic	Neon lamp	WLSD-LE	WLSD2-LE	WLSD3-LE	WLNJ-LE
	LED	WLSD-LD	WLSD2-LD	WLSD3-LD	WLNJ-LD

Item		Lever type: Coil spring (spring diameter: 4.8)  Model	Coil spring (spring diameter: 8)  Model	Steel wire (wire diameter: 1)  Model
Basic	Neon lamp	WLNJ-30LE	WLNJ-2LE	WLNJ-S2LE
	LED	WLNJ-30LD	WLNJ-2LD	WLNJ-S2LD

Covers with Operation Indicators

Item	Lever type: Cover only with indicator  Model
Neon lamp	WL-LE
LED	WL-LD

Note: The default setting is “light-ON when not operating.” Turn the lamp holder by 180° to change the setting to “light-ON when operating.”

General-purpose Switches

Sensor I/O Connector Switches

● Direct-wired Connectors

Lever type	Wiring		Item: Built-in switch specification	Basic: Model	Overtravel: General-purpose Model	Overtravel: High-sensitivity Model	High-precision: Model
Roller lever 	2-core	DC	Standard	WLCA2-LDK13	WLH2-LDK13	WLG2-LDK13	WLGCA2-LDK13
			Airtight seal	WLCA2-55LDK13	WLH2-55LDK13	WLG2-55LDK13	WLGCA2-55LDK13
	4-core	DC	Standard	WLCA2-LDK43	WLH2-LDK43	WLG2-LDK43	WLGCA2-LDK43
			Airtight seal	WLCA2-55LDK43	WLH2-55LDK43	WLG2-55LDK43	WLGCA2-55LDK43
Top-roller plunger 	2-core	DC	Standard	WLD2-LDK13	---	---	---
			Airtight seal	WLD2-55LDK13	---	---	---
	4-core	DC	Standard	WLD2-LDK43	---	---	---
			Airtight seal	WLD2-55LDK43	---	---	---

● Pre-wired Connectors

Lever type	Wiring				Item: Built-in switch specification	Basic: Model	Overtravel: General-purpose Model	Overtravel: High-sensitivity Model	High-precision: Model
Roller lever 	2-core	DC	NO	No. 3, 4	Standard	WLCA2-LD-M1J	WLH2-LD-M1J	WLG2-LD-M1J	WLGCA2-LD-M1J
					Airtight seal	WLCA2-55LD-M1J	---	---	WLGCA2-55LD-M1J
				No. 1, 4	Standard	WLCA2-LD-M1GJ	WLH2-LD-M1GJ	WLG2-LD-M1GJ	WLGCA2-LD-M1GJ
					Airtight seal	WLCA2-55LD-M1GJ	---	WLG2-55LD-M1GJ	---
			NC	No. 3, 2	Standard	---	---	WLG2-LD-M1JB	---
					Airtight seal	WLCA2-55LD-M1JB	---	WLG2-55LD-M1JB	WLGCA2-55LD-M1JB
	4-core	DC	---	---	Standard	WLCA2-LD-DGJ03	WLH2-LD-DGJ03	WLG2-LD-DGJ03	---
					Airtight seal	WLCA2-55LD-DGJ03	WLH2-55LD-DGJ03	WLG2-55LD-DGJ03	WLGCA2-55LD-DGJ03
	3-core	DC	---	No. 2, 3, 4	Standard	WLCA2-LD-DK1EJ03	WLH2-LD-DK1EJ03	WLG2-LD-DK1EJ03	---
					Airtight seal	WLCA2-55LD-DK1EJ03	WLH2-55LD-DK1EJ03	WLG2-55LD-DK1EJ03	---
Top-roller plunger 	2-core	DC	NO	No. 3, 4	Standard	WLD2-LD-M1J	---	---	---
					Airtight seal	WLD2-55LD-M1J	---	---	---
				No. 1, 4	Standard	WLD2-LD-M1GJ	---	---	---
					Airtight seal	WLD2-55LD-M1GJ	---	---	---
			NC	No. 3, 2	Standard	---	---	---	---
					Airtight seal	WLD2-55LD-M1JB	---	---	---
	4-core	DC	---	---	Standard	WLD2-LD-DGJ03	---	---	---
					Airtight seal	---	---	---	---
	3-core	DC	---	No. 2, 3, 4	Standard	WLD2-LD-DK1EJ03	---	---	---
					Airtight seal	WLD2-55LD-DK1EJ03	---	---	---

Environment-resistant Switches

Note: Models are also available with ground terminals.

Item					Lever type	Roller lever R38		
						Basic	Overtravel	
							General-purpose	High-sensitivity
						Model	Model	Model
Airtight seal			No indicator			WLCA2-55	WLH2-55	WLG2-55
			Indicator	LED		WLCA2-55LD	WLH2-55LD	WLG2-55LD
				Neon		WLCA2-55LE	WLH2-55LE	WLG2-55LE
Hermetic seal	Molded terminals	-139	No indicator			WLCA2-139	WLH2-139	WLG2-139
			Indicator	NC wiring		WLCA2-139LD2	---	---
				NO wiring		WLCA2-139LD3	---	WLG2-139LD3
		-140	No indicator			WLCA2-140	WLH2-140	WLG2-140
			Indicator	NC wiring		WLCA2-140LD2	---	WLG2-140LD2
				NO wiring		WLCA2-140LD3	---	WLG2-140LD3
		-141	No indicator			WLCA2-141	WLH2-141	WLG2-141
			Indicator	NC wiring		WLCA2-141LD2	---	WLG2-141LD2
				NO wiring		WLCA2-141LD3	WLH2-141LD3	WLG2-141LD3
	Anti-coolant		No indicator			WLCA2-RP60	WLH2-RP60	WLG2-RP60
			Indicator	NC wiring		WLCA2-RP60LD2	---	WLG2-RP60LD2
				NO wiring		WLCA2-RP60LD3	WLH2-RP60LD3	WLG2-RP60LD3
Heat-resistant			No indicator			WLCA2-TH	WLH2-TH	WLG2-TH
Low-temperature			No indicator			WLCA2-TC	WLH2-TC	WLG2-TC
Corrosion-proof			No indicator			WLCA2-RP	WLH2-RP	WLG2-RP
Weather-proof			No indicator			---	WLH2-P1	WLG2-P1

Item					Lever type	Adjustable roller lever	Adjustable rod lever 25 to 140 mm
						Basic	Basic
						Model	Model
Airtight seal			No indicator			WLCA12-55	WLCL-55
			Indicator	LED		WLCA12-55LD	WLCL-55LD
				Neon		WLCA12-55LE	---
Hermetic seal	Molded terminals	-139	No indicator			WLCA12-139	WLCL-139
		-140				WLCA12-140	WLCL-140
		-141				WLCA12-141	---
	Anti-coolant					WLCA12-RP60	WLCL-RP60
Heat-resistant			No indicator			WLCA12-TH	WLCL-TH
			Indicator			---	---
Low-temperature			No indicator			WLCA12-TC	WLCL-TC
			Indicator			---	---
Corrosion-proof			No indicator			WLCA12-RP	WLCL-RP
			Indicator			---	---
Weather-proof			No indicator			---	---
			Indicator			---	---

Item					Lever type	Top-roller plunger	Sealed top-roller plunger	Coil spring (spring diameter: 6.5)
						Model	Model	Model
Airtight seal			No indicator			WLD2-55	WLD28-55	WLNJ-55
			Indicator	LED		WLD2-55LD	WLD28-55LD	WLNJ-55LD
				Neon		WLD2-55LE	WLD28-55LE	---
Hermetic seal	Molded terminals	-139	No indicator			WLD2-139	WLD28-139	WLNJ-139
		-140				---	WLD28-140	WLNJ-140
	Anti-coolant					WLD2-RP60	WLD28-RP60	WLNJ-RP60
Heat-resistant			No indicator			WLD2-TH	WLD28-TH	WLNJ-TH
			Indicator			---	---	---
Low-temperature			No indicator			WLD2-TC	---	WLNJ-TC
			Indicator			---	---	---
Corrosion-proof			No indicator			WLD2-RP	WLD28-RP	WLNJ-RP
			Indicator			---	---	---

Spatter-prevention Switches

Item			Lever type: Roller lever — Double nut lever	Roller lever — Allen-head lever	Sealed top-roller plunger
			Model	Model	Model
Neon lamp operation indicator	Basic		WLCA2-LEAS	WLCA2-LES	WLD28-LES
	Overtravel	General-purpose	WLH2-LEAS	WLH2-LES	---
		High-sensitivity	WLG2-LEAS	WLG2-LES	---
	High-precision		---	WLGCA2-LES	---
LED operation indicator	Basic		WLCA2-LDAS	WLCA2-LDS	WLD28-LDS
	Overtravel	General-purpose	WLH2-LDAS	WLH2-LDS	---
		High-sensitivity	WLG2-LDAS	WLG2-LDS	---
	High-precision		---	WLGCA2-LDS	---

Note: Ask your OMRON representative about WL01□-□S Microload Switches.

Long-life Switches

Item / Lever type			LED operation indicator (See note 1.) — Basic	Overtravel — General-purpose	Overtravel — High-sensitivity	High-precision
			Model	Model	Model	Model
 Roller lever, screw terminal			WLMCA2-LD	WLMH2-LD	WLMG2-LD	WLMGCA2-LD
 Roller lever, direct-wired connector	2-core	AC	WLMCA2-LDK13A	WLMH2-LDK13A	WLMG2-LDK13A	WLMGCA2-LDK13A
		DC	WLMCA2-LDK13	WLMH2-LDK13	WLMG2-LDK13	WLMGCA2-LDK13
	4-core	AC	WLMCA2-LDK43A	WLMH2-LDK43A	WLMG2-LDK43A	WLMGCA2-LDK43A
		DC	WLMCA2-LDK43	WLMH2-LDK43	WLMG2-LDK43	WLMGCA2-LDK43
 Roller lever, pre-wired connector (See note 2.)	2-core	DC	WLMCA2-LD-M1J	WLMH2-LD-M1J	WLMG2-LD-M1J	WLMGCA2-LD-M1J
	4-core	AC	WLMCA2-LD-AGJ03	WLMH2-LD-AGJ03	WLMG2-LD-AGJ03	WLMGCA2-LD-AGJ03
		DC	WLMCA2-LD-DGJ03	WLMH2-LD-DGJ03	WLMG2-LD-DGJ03	WLMGCA2-LD-DGJ03

Note 1. The default setting is “light-ON when not operating.” Turn the lamp holder by 180° to change the setting to “light-ON when operating”. (Ask your OMRON representative about 2-core models.)

2. With 0.3-m cable attached.

Individual Parts

Heads

Actuator type	Set model	Head model (with Actuator)
Roller lever 	WLCA2	WL-1H1100
	WLG2	WL-2H1100
	WLH2	WL-2H1100-1 (See note.)
	WLCA2-2	WL-3H1100
	WLCA2-2N	WL-6H1100
Adjustable roller lever 	WLCA12	WL-1H2100
	WLG12	WL-2H2100
	WLH12	WL-2H2100-1 (See note.)
	WLCA12-2	WL-3H2100
	WLCA12-2N	WL-6H2100
Adjustable rod lever 	WLCL	WL-4H4100
	WLGL	WL-2H4100
	WLCL-2	WL-3H4100
	WLCL-2N	WL-6H4100

Actuator type	Set model	Head model (with Actuator)
Top plunger 	WLD	WL-7H100
	WLD2	WL-7H200
	WLD3	WL-7H300
	WLD28	WL-7H400
Horizontal plunger 	WLSD	WL-8H100
	WLSD2	WL-8H200
	WLSD3	WL-8H300
Fork lever lock 	WLCA32-41	WL-5H5100
	WLCA32-42	WL-5H5102
	WLCA32-43	WL-5H5104
	WLCA32-44	WL-5H5104
Coil spring 	WLNJ	WL-9H100
	WLNJ-30	WL-9H200
	WLNJ-2	WL-9H300
	WLNJ-S2	WL-9H400

Note: The model number of Heads without levers are same as those of Heads with levers without the numbers at the end.
Example: WL-1H1100 becomes WL-1H without the lever.
However, the WLH2 and WLH12 become WL-2H-1 and the WLGCA2 becomes WL-1H-1 for the Heads without levers.
Other Heads are also available. Ask your OMRON representative.

Switches without Levers

Switches without levers 		
Actuator type		**Switch model**
Switches for roller levers 	Basic R38	WLRCA2
	High-precision R38	WLRGCA2
	High-sensitivity overtravel, 80°	WLRG2
	General-purpose overtravel, 80°	WLRH2
	Overtravel, 90° operation	WLRCA2-2
	Overtravel, 90° operation	WLRCA2-2N
Switches for adjustable roller levers 	Basic	WLRCA2
	High-sensitivity overtravel, 80°	WLRG2
	General-purpose overtravel, 80°	WLRH2
	Overtravel, 90° operation	WLRCA2-2
	Overtravel, 90° operation	WLRCA2-2N
Switches for adjustable rod lever 	Basic, 25 to 140 mm	WLRCL
	High-sensitivity overtravel, 80°, 25 to 140 mm	WLRG2
	Overtravel, 90° operation, 25 to 140 mm	WLRCA2-2
	Overtravel, 90° operation, 25 to 140 mm	WLRCA2-2N
Switches for top plungers 	---	---
Switches for horizontal plungers 	---	---
Switches for fork lever locks 	Protective, WL-5A100 Protective, WL-5A102 Protective, WL-5A104	WLRCA32
Switches for coil springs 	---	---

Spatter-prevention Products

● Levers and Covers with Indicators

Complete Heads with allen-head levers 	Double Nut Lever 	Allen-head Lever 	Cover with Indicator 
WL-1H1100S (for WLCA2-□ or WLGCA2-□)	WL-1A105S Roller Lever (forward and backward lever)	EWL-1A103S Roller lever (forward and backward lever)	Neon lamp WL-LES
WL-2H1100S (for WLH2-□ or WLG2-□)			LED (LED) WL-LDS

● Switches without Levers

Switches without levers 
WLRCA2-LDS
WLRH2-LES WLRH2-LDS WLRG2-LES
WLRG2-LDS
WLRGCA2-LES

Specifications, Ratings, and Characteristics

General-purpose Switches

■ Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	All modes with direct-wired connectors or pre-wired connectors except for hermetically sealed models
CSA	CSA C22.2 No. 14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353	Only models with ground terminals
		J9950023	Models with direct-wired connectors and no ground terminal
		J9950959	Only models with pre-wired connectors and DC specifications
CCC (CQC)	GB14048.5	2003010305032365	Contact your OMRON representative for information on approved models.

Note: Contact your OMRON representative for more information on approved models.

■ Approved Standard Ratings

UL/CSA

Standard-load Switches: A600, NEMA

Rated voltage	Carry current	Current (A)		Volt-amperes (VA)	
		Make	Break	Make	Break
120 VAC 240 VAC 480 VAC 600 VAC	10 A	60 30 15 12	6 3 1.5 1.2	7,200	720

Switches without Indicators

LE Switches (Neon lamp): A300

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

LD Switches (LED)

Rated voltage	Carry current
115 VAC	10 A
115 VDC	0.8 A

Microload Switches

0.1 A at 125 VAC, 0.1 A at 30 VDC

TÜV (EN60947-5-1) (Only models with ground terminals are approved.), CCC (GB14048.5)

Model	Application category and ratings	Thermal current (I_{the})	Indicator
WL□	AC-15: 2 A/250 V DC-12: 2 A/48 V	10 A	---
WL01□	AC-14: 0.1 A/125V DC-12: 0.1 A/48 V	0.5 A	---
WL□-LE	AC-15: 2 A/250 V	10 A	Neon lamp
WL01□-LE	AC-14: 0.1 A/125 V	0.5 A	Neon lamp
WL□-LD	AC-15: 2 A/115 V DC-12: 2 A/48 V	10 A	LED
WL01□-LD	AC-14: 0.1 A/115 V DC-12: 0.1 A/48 V	0.5 A	LED

Note: As an example, AC-15: 2 A/250 V means the following:

Application category	AC-15
Rated operating current (Ie)	2 A
Rated operating voltage (Ue)	250 V

■ General Ratings

Standard-load Switches

Item / Model	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
Basic models, overtravel models (except for high-sensitivity models), and high-precision models	AC 125 250 500	10 10 10		3 2 1.5	1.5 1 0.8	10 10 3		5 3 1.5	2.5 1.5 0.8
	DC 8 14 30 125 250	10 10 6 0.8 0.4		6 6 4 0.2 0.1	3 3 3 0.2 0.1	10 10 6 0.8 0.4		6 6 4 0.2 0.1	
High-sensitivity overtravel models	AC 125 250	5 5		---		---		---	
	DC 125 250	0.4 0.2		---		---		---	

Inrush current	**NC**	30 A max. (15 A max. (See note.))
	NO	20 A max. (10 A max. (See note.))

Note: For high-sensitivity overtravel models.

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.
5. For PC loads, use the microload models.

Indicator-equipped Switches

Model	Item	Max. rated voltage (V)	Leakage current (mA)
WL-LE	Neon lamp	125 AC	Approx. 0.6
		250 AC	Approx. 1.9
WL-LD	LED	10 to 115 AC/DC	Approx. 0.5
		10 to 24 AC/DC	Approx. 0.4

■ Characteristics

Degree of protection	IP67
Durability (See note 3.)	Mechanical: 15,000,000 operations min. (See note 4.) Electrical: 750,000 operations min. (See note 5.)
Operating speed	1 mm to 1 m/s (for WLCA2)
Operating frequency	Mechanical: 120 operations/minute min. Electrical: 30 operations/minute min.
Rated frequency	50/60 Hz
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	25 mΩ max. (initial value)
Dielectric strength	1,000 VAC (600 VAC), 50/60 Hz for 1 min between terminals of the same polarity 2,200 VAC (1,500 VAC), 50/60 Hz for 1 min/ Uimp 2.5 kV between current-carrying metal part and ground 2,200 VAC (1,500 VAC), 50/60 Hz for 1 min Uimp 2.5 kV between each terminal and non-current-carrying metal part
Rated insulation voltage (U_i)	250 V (EN60947-5-1)
Switching overvoltage	1,000 V max. (EN60947-5-1)
Pollution degree (operating environment)	Level 3 (EN60947-5-1)
Short-circuit protective device (SCPD)	10 A, fuse type gG or gI (IEC269)
Conditional short-circuit current	100 A (EN60947-5-1)
Conventional enclosed thermal current (I_{the})	10 A, 0.5 A (EN60947-5-1)
Protection against electric shock	Class I
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude (See note 6.)
Shock resistance	Destruction: 1,000 m/s^2 min. Malfunction: 300 m/s^2 min. (See note 6.)
Ambient temperature	Operating: –10°C to 80°C (with no icing) (See note 7.)
Ambient humidity	Operating: 35% to 95%
Weight	Approx. 275 g (in the case of WLCA2)

Note 1: The above figures are initial values.

2. The figures in parentheses for dielectric strength are those for the high-sensitivity overtravel models.

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

4. Durability is 10,000,000 operations min. for general-purpose or high-sensitivity overtravel models, and for flexible rod models.

5. Durability is 500,000 operations min. for high-sensitivity models. All microload models however, are 1,000,000 operations min.

6. Except flexible rod models. The shock resistance (malfunction) for microload models is 200 m/s^2 min.

7. For low-temperature models this is –40°C to 40°C (no icing). For heat-resistant models the range is 5°C to 120°C.

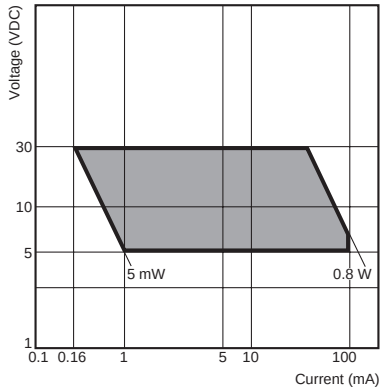
Microload Switches

Refer to these ratings before using the product.

Rated voltage (V)	Resistive load (A)
AC 125	0.1
DC 30	

Operation in the following ranges will produce optimum performance.

Recommended load range	5 to 30 VDC 0.5 to 100 mA



Spatter-prevention Switches

■ Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	All modes with direct-wired connectors or pre-wired connectors except for hermetically sealed models
CSA	CSA C22.2 No. 14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353	Only models with ground terminals
		J9950023	Models with direct-wired connectors and no ground terminal
		J9950959	Only models with pre-wired connectors and DC specifications
CCC (CQC)	GB14048.5	2003010305032365	Contact your OMRON representative for information on approved models.

Note: Contact your OMRON representative for more information on approved models.

■ Approved Standard Ratings

UL/CSA

LE Switches (Neon lamp): A300

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

LD Switches (LED)

Rated voltage	Carry current
115 VAC	10 A
115 VDC	0.8 A

TÜV (EN60947-5-1) (Only models with ground terminals are approved.), CCC (GB14048.5)

Model	Application category and ratings
WL□	AC-15: 2 A/250 V DC-12: 2 A/48 V
WL01□	AC-14: 0.1 A/125V DC-12: 0.1 A/48 V
WL□-LE	AC-15: 2 A/250 V
WL01□-LE	AC-14: 0.1 A/125 V
WL□-LD	AC-15: 2 A/115 V DC-12: 2 A/48 V
WL01□-LD	AC-14: 0.1 A/115 V DC-12: 0.1 A/48 V

Note: As an example, AC-15: 2 A/250 V means the following:

Application category	AC-15
Rated operating current (Ie)	2 A
Rated operating voltage (Ue)	250 V

■ General Ratings

Item / Model	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
WL□-LES	AC 125 250	10 10		3 2	1.5 1	10 10		5 3	2.5 1.5
WL□-LDS	AC 115	10		3	1.5	10		5	2.5
	DC 12 24 48	10 6 3		6 4 2	3 3 1.5	10 6 3		6 4 2	

Inrush current	**NC**	30 A max.
	NO	20 A max.
Operating temperature		–10°C to 80°C (with no icing)
Operating humidity		95% max.

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.

■ Characteristics

Degree of protection	IP67
Durability (See note 3.)	Mechanical: 15,000,000 operations min. (See note 4.) Electrical: 750,000 operations min. (See note 5.)
Operating speed	1 mm to 1 m/s (for WLCA2)
Operating frequency	Mechanical: 120 operations/minute min. Electrical: 30 operations/minute min.
Rated frequency	50/60 Hz
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	25 mΩ max. (initial value)
Dielectric strength	1,000 VAC (600 VAC), 50/60 Hz for 1 min between terminals of the same polarity 2,200 VAC (1,500 VAC), 50/60 Hz for 1 min/ Uimp 2.5 kV between current-carrying metal part and ground 2,200 VAC (1,500 VAC), 50/60 Hz for 1 min Uimp 2.5 kV between each terminal and non-current-carrying metal part
Rated insulation voltage (U_i)	250 V (EN60947-5-1)
Switching overvoltage	1,000 V max. (EN60947-5-1)
Pollution degree (operating environment)	Level 3 (EN60947-5-1)
Short-circuit protective device (SCPD)	10 A, fuse type gG or gI (IEC269)
Conditional short-circuit current	100 A (EN60947-5-1)
Conventional enclosed thermal current (I_{the})	10 A, 0.5 A (EN60947-5-1)
Protection against electric shock	Class I
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s^2 min. Malfunction: 300 m/s^2 min.
Ambient temperature	Operating: –10°C to 80°C (with no icing)
Ambient humidity	Operating: 35% to 95%
Weight	Approx. 275 g (in the case of WLCA2)

Note 1: The above figures are initial values.
2. The figures in parentheses for dielectric strength are those for the high-sensitivity overtravel models.
3. The values are calculated at an operating temperature of 5°C to 35°C and an operating humidity of 40% to 70%. Contact your OMRON sales representative for more detailed information on other operating environments.
4. Durability is 10,000,000 operations min. for general-purpose or high-sensitivity overtravel models.
5. Durability is 500,000 operations min. for high-precision models. All microload models however, are 1,000,000 operations min.

Long-life Switches

■ Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	All modes with direct-wired connectors or pre-wired connectors except for hermetically sealed models
CSA	CSA C22.2 No. 14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353	Only models with ground terminals
		J9950023	Models with direct-wired connectors and no ground terminal
		J9950959	Only models with pre-wired connectors and DC specifications
CCC (CQC)	GB14048.5	2003010305032365	Contact your OMRON representative for information on approved models.

Note: Contact your OMRON representative for more information on approved models.

■ Approved Standard Ratings

UL/CSA

LE Switches (Neon lamp): A300

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

LD Switches (LED)

Rated voltage	Carry current
115 VAC	10 A
115 VDC	0.8 A

TÜV (EN60947-5-1) (Only models with ground terminals are approved.), CCC (GB14048.5)

Model	Application category and ratings	Thermal current (I_{the})	Indicator
WL□	AC-15: 2 A/250 V DC-12: 2 A/48 V	10 A	---
WL01□	AC-14: 0.1 A/125 V DC-12: 0.1 A/48 V	0.5 A	---
WL□-LE	AC-15: 2 A/250 V	10 A	Neon lamp
WL01□-LE	AC-14: 0.1 A/125 V	0.5 A	Neon lamp
WL□-LD	AC-15: 2 A/115 V DC-12: 2 A/48 V	10 A	LED
WL01□-LD	AC-14: 0.1 A/115 V DC-12: 0.1 A/48 V	0.5 A	LED

■ General Ratings

Refer to these ratings before using the product.

Screw Terminal Switches

Item / Model	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
Basic models, overtravel models, (except for high-sensitivity models), and high-precision models	115 AC	10		3	1.5	10		5	2.5
	12 DC 24 DC 48 DC 115 DC	10 6 3 0.8		6 4 2 0.2	3 3 1.5 0.2	10 6 3 0.8		6 4 2 0.2	
High-sensitivity overtravel models	115 AC	5		---		---		---	
	115 DC	0.4		---		---		---	

Inrush current	**NC**	30 A max. (15 A max. (See note.))
	NO	20 A max. (10 A max. (See note.))

Note: For high-sensitivity overtravel models.

Direct-wired Connector and Pre-wired Connector Switches

Model	Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
DC	12 DC	3	3	3	3	3	3	3	3
	24 DC	3	3	3	3	3	3	3	3
	48 DC	3	3	3	3	3	3	3	3
	115 DC	0.8	0.8	0.2	0.2	0.8	0.8	0.2	0.2
AC	115 AC	3	3	3	1.5	3	3	3	2.5

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.

■ Characteristics

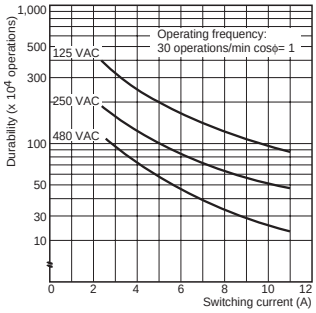
Degree of protection	IP67
Durability (See note 2.)	Mechanical: 30,000,000 operations min. (10 mA at 24 VDC, resistive load) Electrical: 750,000 operations min. (10 A at 115 VAC, resistive load), but for high-precision models: 500,000 operations min. (10 A at 115 VAC, resistive load)
Operating speed	1 mm to 1 m/s (for WLCA2)
Operating frequency	Mechanical: 120 operations/minute Electrical: 30 operations/minute
Rated frequency	50/60 Hz
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	25 mΩ max. (initial value)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between terminals of the same polarity. (Except connector models.) 2,200 VAC (1,500 V), 50/60 Hz for 1 min between current-carrying metal part and ground. 2,200 VAC (1,500 V), 50/60 Hz for 1 min between each terminal and non-current-carrying metal part.
Vibration resistance	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s^2 min. Malfunction: 300 m/s^2 min.
Ambient temperature	Operating: –10°C to 80°C (with no icing)
Ambient humidity	Operating: 35% to 95%
Weight	Approx. 275 g (for WLCA2)

Note 1: The figures in parentheses for dielectric strength, are those for overtravel (high-sensitivity) or connector models.
2. The values are calculated at an operating temperature of 5°C to 35°C, and an operating humidity of 40% to 70%. Contact your OMRON sales representative for more detailed information on other operating environments.

■ Engineering Data

Electrical Durability: cosϕ= 1

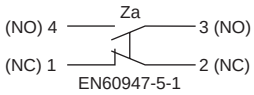
(Operating temperature: 5°C to 35°C,
operating humidity: 40% to 70%)



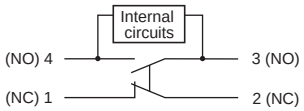
Connections

■ Contact Forms

Screw Terminal Switches



Screw Terminal and Indicator-equipped (Light-ON when Not Operating) Switches (See note 1.)

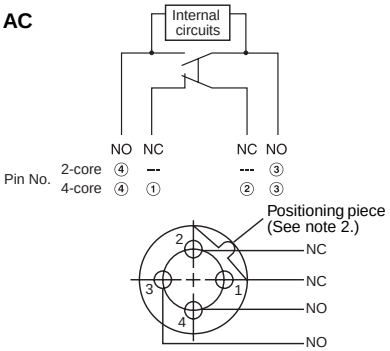


Note 1: Light-ON when not operating means the indicator is lit when the actuator is free and is not light when the Switch contacts (NO) close when the actuator rotates or is pushed down.

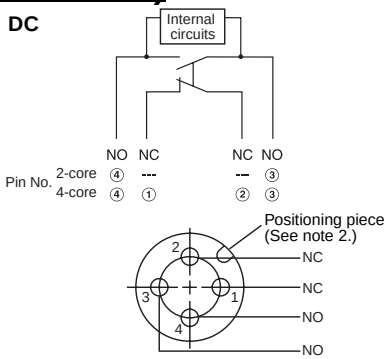
2. The position of the positioning piece is not always the same. If using an L-shaped connector causes problems in application, use a straight connector.

Direct-wired Connector, Pre-wired Connector, and Indicator-equipped (Light-ON when Not Operating) Switches (See note 1.)

AC



DC



■ Indicators

Indicator Covers

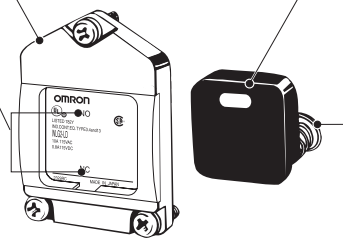
The indicator covered if outsert molded from diecast aluminum and has outstanding sealing properties.

Indicator Windows

Operation (i.e., light-ON when operating or light-ON when not operating) depends on whether a neon lamp or LED is used.

Light-ON when Operating/Not Operating

Indicators can be switched from light-ON when operating and light-ON when not operating, by simply rotating the indicator holder by 180°.
(Molded terminals cannot be switched in this way.)

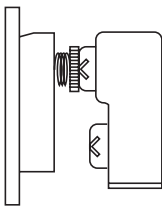


Indicator

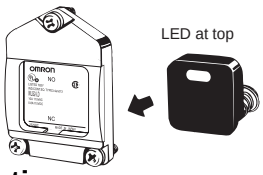
The indicator is either a neon lamp or an LED. Models with LED indicators have a built-in rectifier stack, so it is not necessary to change the polarity.

Contact Spring

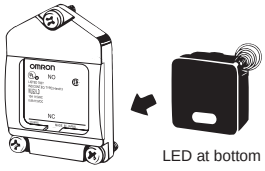
The built-in switch's terminal screws are used to connect the indicator terminal. Since the connection spring (coil spring) is used for this connection, it will not be necessary to connect the indicator terminal. When a ground terminal is provided however, a lead wire must be used.



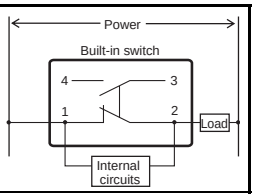
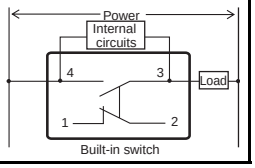
Light-ON when Operating



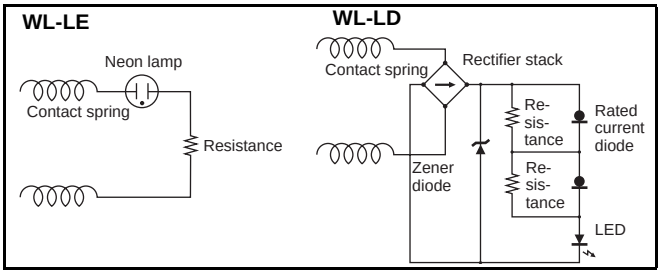
Light-ON when Not Operating



Operation

Light-ON when operating (See note 1.)	**WL-LE WL-LD**	
Light-ON when not operating (See note 2.)	**WL-LE WL-LD**	

Internal Circuits



Note: The indicator cover cannot be replaced on the molded terminals. In all cases the indicator does not light when the load is ON.

Note 1. Light-ON when operating means that the lamp lights when the Limit Switch contacts (NC) release, or when the actuator rotates or is pushed down.

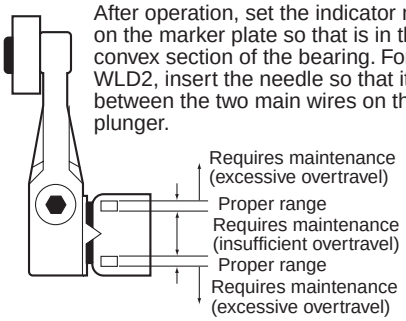
2. Light-ON when not operating means the lamp remains lit when the actuator is free, or when the Limit Switch contacts (NO) close when the actuator rotates or is pushed down.

Nomenclature

General-purpose Switches

Set Position Marker Plate

After operation, set the indicator needle on the marker plate so that is in the convex section of the bearing. For the WLD2, insert the needle so that it is between the two main wires on the plunger.



Actuator

Roller
The roller is made of self-lubricating sintered stainless steel and boasts high resistance to wear.

Lever
The lever forged of anti-corrosive aluminium alloy features high corrosion resistances and outstanding ruggedness. With roller lever, adjustable rod and flexible rod models, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Head

The Head used in the roller lever type, adjustable rod lever type, or horizontal plunger type (except for 90° operation models) can be mounted in any of the four directions by removing the screws at the four corners of the Head.

Head-mounting Screws

Shaft Section Seal

By fitting an O-ring to the rotary shaft and with an appropriate interference of the screws, high-sealing properties are maintained.

Roller Lever Setscrew

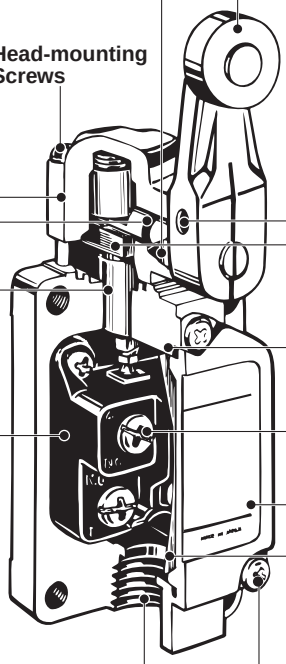
Operational Plunger (See note 2.)

Cover Seal

By using a packing seal as the cover seal, an optimum squeeze can be obtained and high sealing properties are assured as well.

Bearing

The bearing smooths the plunger movement.



Built-in Switch

Built-in switch with SPST-NO+NC contact form.

Terminal Screws

Four, M4 screws

Cover

Separator

The separator has outstanding insulation properties and prevents the generation of any gases which may corrode the internal parts.

Cover Setscrew

Phillips screws are used to ensure ease of use.

Conduit Opening (See note 1.)

The conduit threads are parallel threads for G $^{1}/_{2}$ tube and offer further increased sealing properties when used in conjunction with the SC connector.

Note 1. The display for conduit threads has changed from PF$^{1}/_{2}$ to G$^{1}/_{2}$, according to revisions of JIS B 0202. This is only a change in the display, so the thread size and pitch have not changed. (Conduit threads Pg 13.5 and $^{1}/_{2}$-14NPT are also available.)

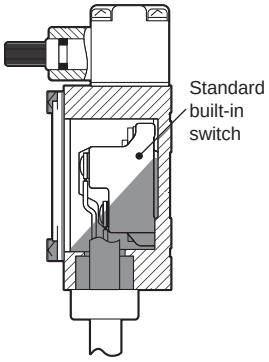
2. By changing the orientation of the operational plunger, three operational directions can be selected electrically. (This is possible only with standard roller lever, adjustable roller lever, and adjustable rod lever models. For the overtravel models, only 90° operation models have this function.)

Environment-resistant Switches

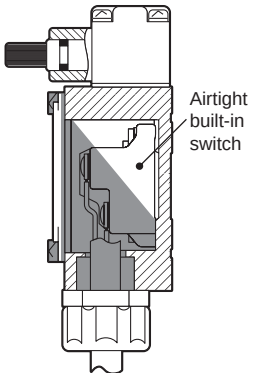
Mold Specifications for Hermetic Seal Switches

: Molded parts

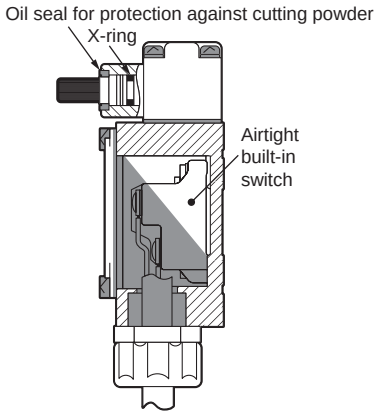
WL□-139



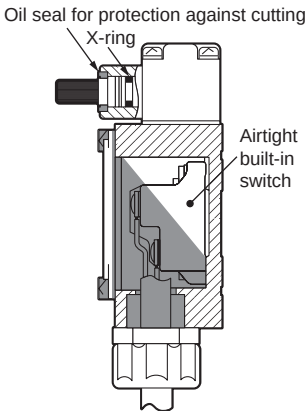
WL□-140



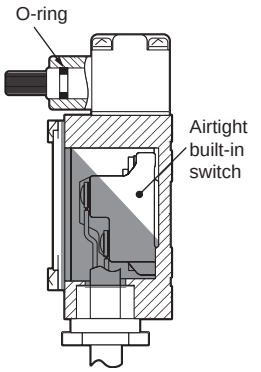
WL□-141



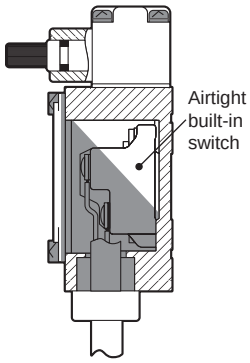
WL□-145



WL□-RP40



WL□-RP60



Note: Florine rubber is used for all rubber parts.

Model	Cable specifications
WL□-139	Standard 5-m VCT (vinyl cabtire cable) cable attached. Finished diameter: 11.5 mm, 4-core.
WL□-140 **WL□-141** **WL□-145** **WL□-RP40** **WL□-RP60**	Standard 5-m VCT cable, with high flexibility and good anti-oil properties attached. Finished diameter: 11.5 mm, 4-core.

Spatter-prevention Switches

Double Nut Lever

SUS304 is used for double nut.

Roller, Roller Axis

Using stainless steel prevents spatter from adhering.

Screws

SUS304 is used, preventing spatter from adhering.

Operating Lever

Melamine sinter-painted, it is easy to peel off the spatter.

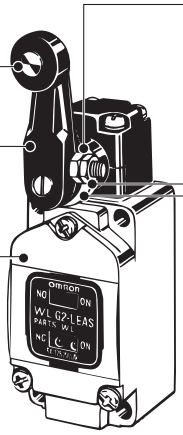
Head Cap

Using fluororesin prevents spatter from adhering.

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

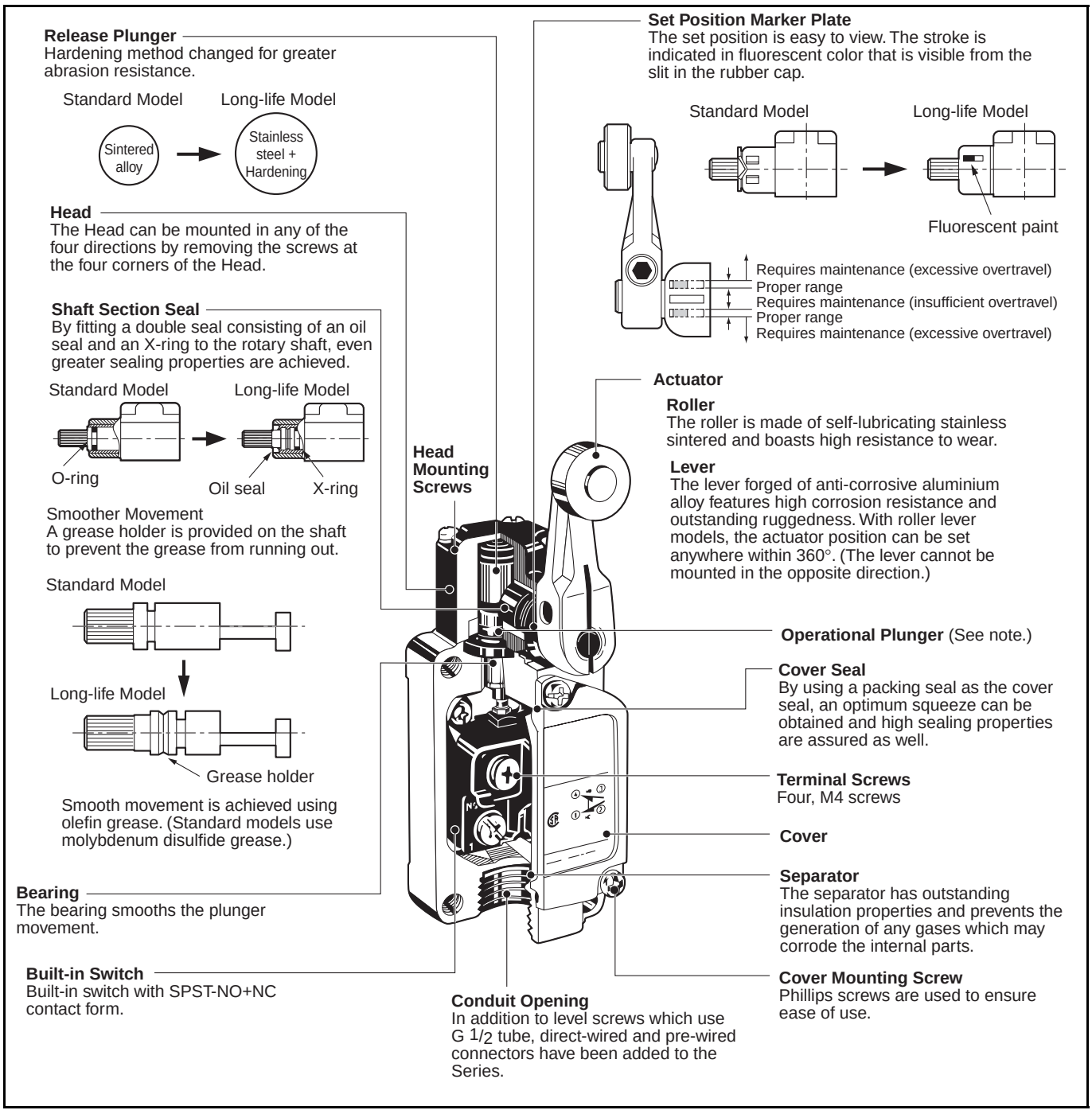
Lamp Cover

Heat-resistant resin is used for the lamp cover.
By using spherical surface for the display part, it disperses the direction of spatter.



The lack of gap prevents spatter powder from clogging.

Long-life Switches



Note: By changing the direction of the operational plunger, any one of the three operational directions (both sides, left, or right) can be selected. (Applicable only to the WLMGCA2-□.)

Dimensions

General-purpose Models

■ Standard Models

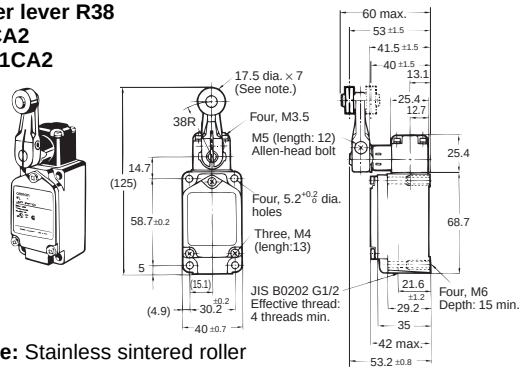
Basic

Rotating Lever

Note 1. Rotating Lever Models: For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.

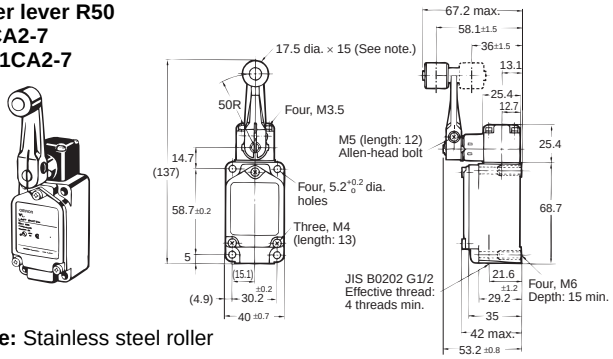
2. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Roller lever R38
WLCA2
WL01CA2



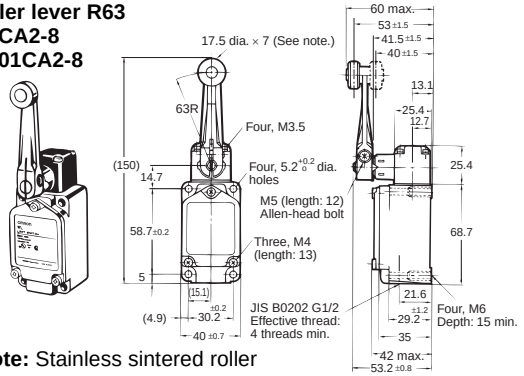
Note: Stainless sintered roller

Roller lever R50
WLCA2-7
WL01CA2-7



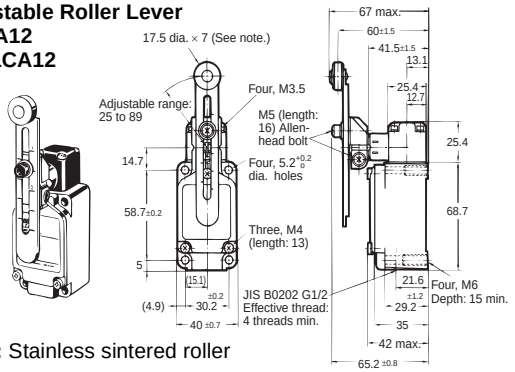
Note: Stainless steel roller

Roller lever R63
WLCA2-8
WL01CA2-8



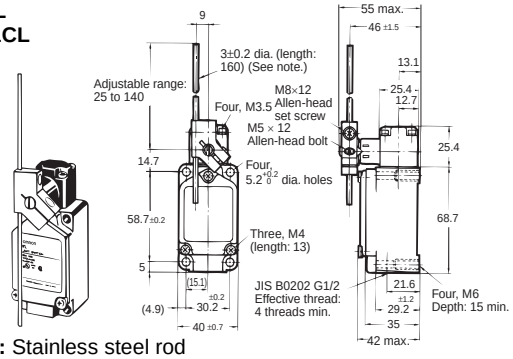
Note: Stainless sintered roller

Adjustable Roller Lever
WLCA12
WL01CA12



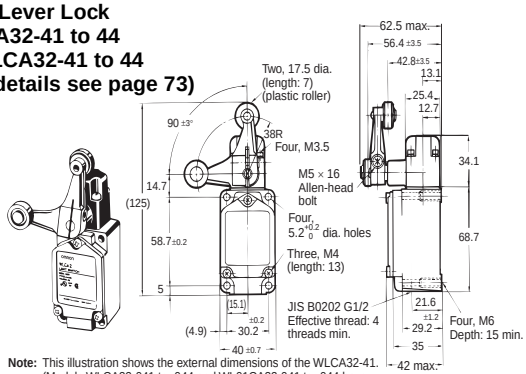
Note: Stainless sintered roller

Adjustable Rod Lever (25 to 140 mm)
WLCL
WL01CL



Note: Stainless steel rod

Fork Lever Lock
WLCA32-41 to 44
WL01CA32-41 to 44
(For details see page 73)



Note: This illustration shows the external dimensions of the WLCA32-41. (Models WLCA32-041 to -044 and WL01CA32-041 to -044 have stainless steel rollers.)

Operating characteristics	WLCA2 WL01CA2	WLCA2-7 WL01CA2-7	WLCA2-8 WL01CA2-8	WLCA12 WL01CA12 (See note 1.)	WLCL, WL01CL (See note 2.)
OF max.	13.34 N	10.2 N	8.04 N	13.34 N	1.39 N
RF min.	2.23 N	1.67 N	1.34 N	2.23 N	0.27 N
PT	15±5°	15±5°	15±5°	15±5°	15±5°
OT min.	30°	30°	30°	30°	30°
MD max.	12°	12°	12°	12°	12°

Operating characteristics	WLCA32-41 to 44, WL01CA32-41 to 44
Force necessary to reverse the direction of the lever: Max.	11.77 N
Movement until the lever reverses	50±5°
Movement until switch operation: Min.	55°
Movement after switch operation: Max.	35°

Note 1: The operating characteristics for WLCA12 and WL01CA12 are measured at the lever length of 38 mm.

2. The operating characteristics for WLCL and WL01CL are measured at the rod length of 140 mm.

OF and RF for WLCA12, with a lever length of 89 mm.

Operating characteristics	WLCA12, WL01CA12
OF	5.68 N
RF	0.95 N

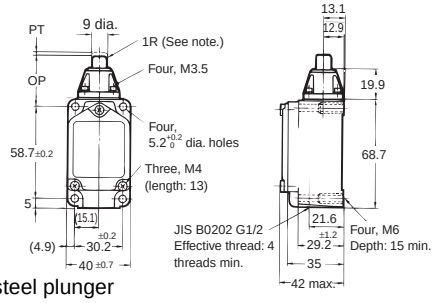
■ Standard Models

Basic

Plunger

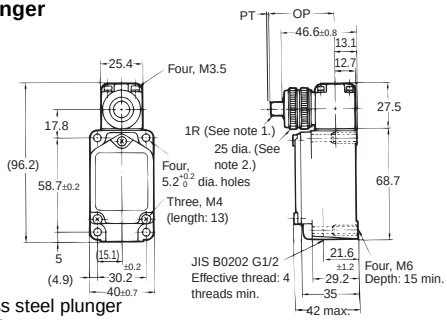
Note 1. For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.
2. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Top Plunger
WLD
WL01D



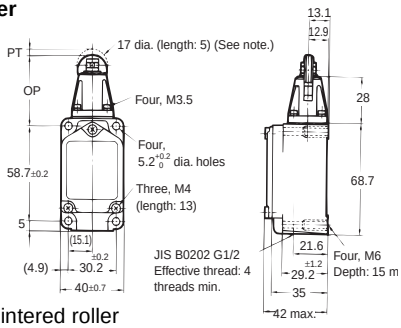
Note: Stainless steel plunger

Horizontal Plunger
WLSD
WL01SD



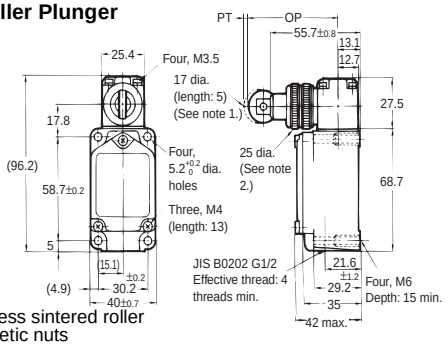
Note 1: Stainless steel plunger
2. Cosmetic nuts

Top-roller Plunger
WLD2
WL01D2



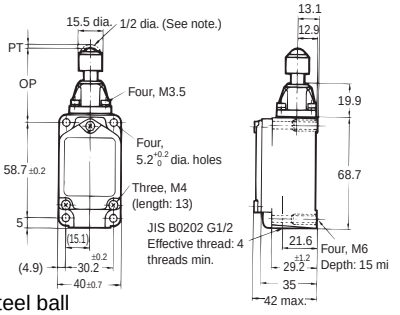
Note: Stainless sintered roller

Horizontal-roller Plunger
WLSD2
WL01SD2



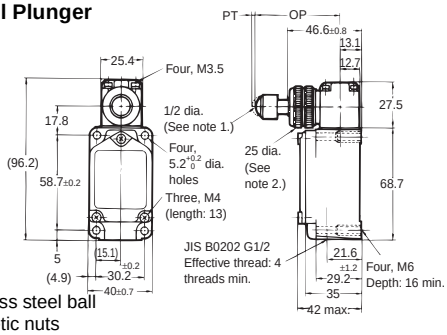
Note 1: Stainless sintered roller
2. Cosmetic nuts
3. The WLSD21 model, which has the roller rotated by 90° is also available.

Top-ball Plunger
WLD3
WL01D3



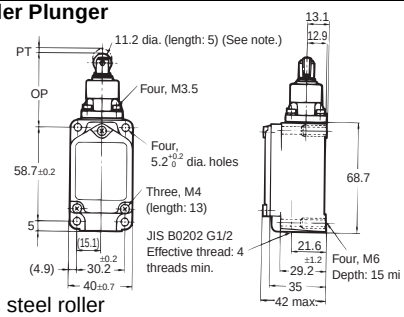
Note: Stainless steel ball

Horizontal-ball Plunger
WLSD3
WL01SD3



Note 1: Stainless steel ball
2. Cosmetic nuts

Sealed Top-roller Plunger
WLD28
WL01D28



Note: Stainless steel roller

Operating characteristics	WLD WL01D	WLD2 WL01D2	WLD3 WL01D3	WLD28 WL01D28	WLSD2 WL01SD2	WLSD3 WL01SD3	WLSD WL01SD
OF max. **RF min.** **PT max.** **OT min.** **MD max.**	26.67 N 8.92 N 1.7 mm 6.4 mm 1 mm	26.67 N 8.92 N 1.7 mm 5.6 mm 1 mm	26.67 N 8.92 N 1.7 mm 4 mm 1 mm	16.67 N 4.41 N 1.7 mm 5.6 mm 1 mm	40.03 N 8.89 N 2.8 mm 5.6 mm 1 mm	40.03 N 8.89 N 2.8 mm 4 mm 1 mm	40.03 N 8.89 N 2.8 mm 6.4 mm 1 mm
OP **TTP max.**	34±0.8 mm 29.5 mm	44±0.8 mm 39.5 mm	44.5±0.8 mm 41 mm	44±0.8 mm 39.5 mm	54.2±0.8 mm ---	54.1±0.8 mm ---	40.6±0.8 mm ---

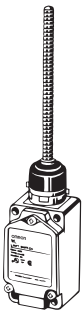
■ Standard Models

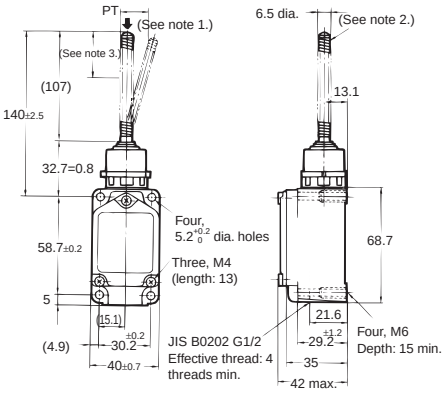
Basic

Flexible Rod

Note 1. For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.
2. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

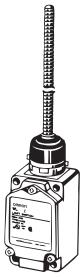
Coil Spring
WLNJ
WL01NJ

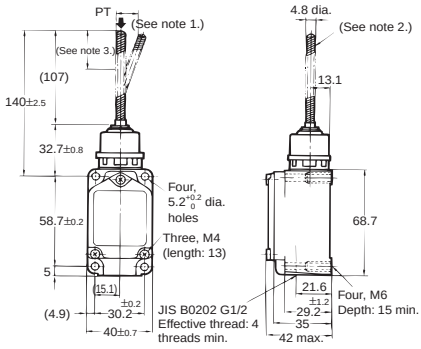




Note: 1. The coil spring may be operated from any direction except the axial direction (↓).
2. Stainless steel coil spring
3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.

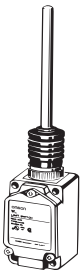
Coil Spring (Multi-wire)
WLNJ-30
WL01NJ-30

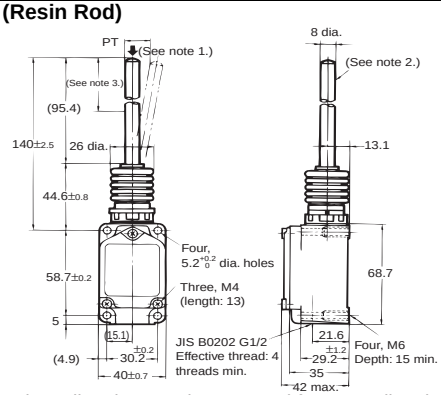




Note: 1. The coil spring may be operated from any direction except the axial direction (↓).
2. Piano wire coil
3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.

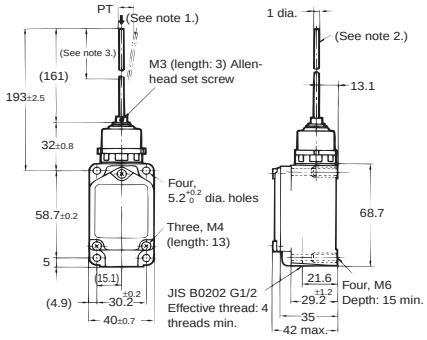
Coil Spring (Resin Rod)
WLNJ-2
WL01NJ-2





Note: 1. The coil spring may be operated from any direction except the axial direction (↓).
2. Polyamide resin rod
3. Optimum operating range of the rod is within 1/3 of the entire length from the top end.

Steel Wire
WLNJ-S2
WL01NJ-S2



Note: 1. The coil spring may be operated from any direction except the axial direction (↓).
2. Stainless steel wire
3. Optimum operating range of the wire is within 1/3 of the entire length from the top end.

Operating characteristics	WLNJ WL01NJ (See note.)	WLNJ30 WL01NJ30 (See note.)	WLNJ-2 WL01NJ-2 (See note.)	WLNJ-S2 WL01NJ-S2 (See note.)
OF max.	1.47 N	1.47 N	1.47 N	0.28 N
PT	20±10 mm	20±10 mm	40±20 mm	40±20 mm

Note: These values are taken from the top end of the wire or spring.

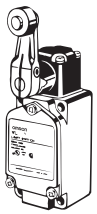
■ Standard Models

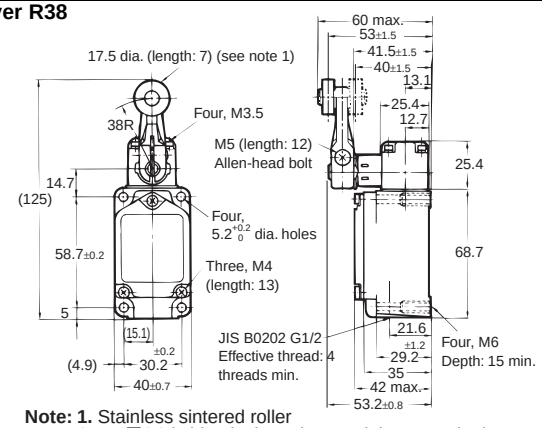
Overtravel

General-purpose/High-sensitivity Models

Note 1. For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.
2. One-side operation is not possible with the general-purpose and high-sensitivity models.
3. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

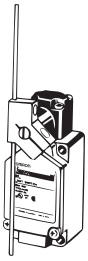
Roller Lever R38
WLH2
WL01H2
WLG2
WL01G2

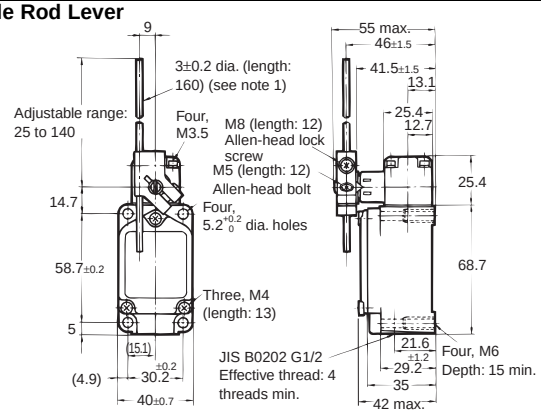




Note: 1. Stainless sintered roller
2. WL□G2 is identical to other models except in the shape of the set position marker plate.
3. The built-in switch for WLH2 is W-10FB3.
4. The built-in switch for WLG2 is W-10FB3-8.

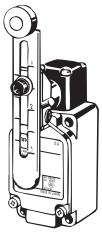
Adjustable Rod Lever
WLHL
WL01HL
WLGL
WL01GL

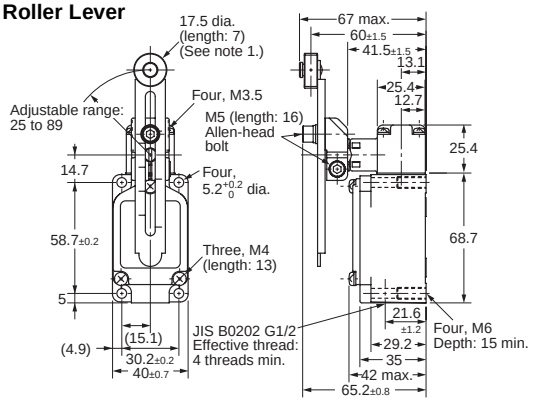




Note: 1. WL□GL is identical to other models except in the shape of the set position marker plate.
2. The built-in switch for WLHL is W-10FB3.
3. The built-in switch for WLGL is W-10FB3-8.

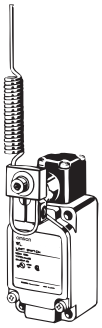
Adjustable Roller Lever
WLH12
WL01H12
WLG12
WL01G12

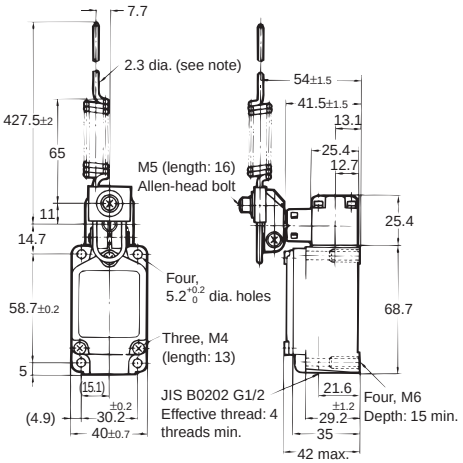




Note: 1. Stainless sintered roller
2. WL□G12 is identical to other models except in the shape of the set position marker plate.
3. The built-in switch for WLH12 is W-10FB3.
4. The built-in switch for WLG12 is W-10FB3-8.

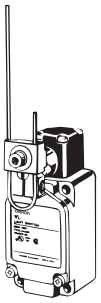
Rod Spring Lever
WLHAL5
WL01HAL5

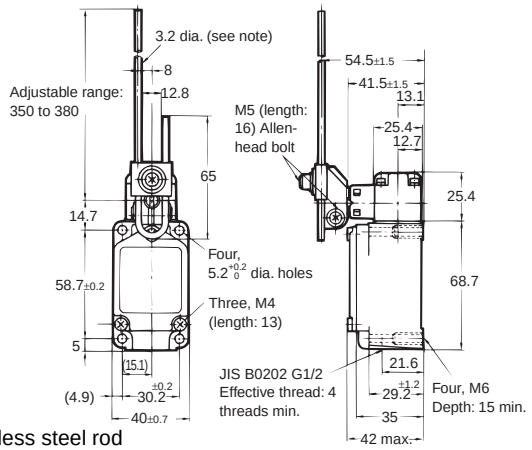




Note: Piano wire

Adjustable Rod Lever
WLHAL4
WL01HAL4





Note: Stainless steel rod

OF and RF for WLH12 and WL01H12, with a lever length of 89 mm.

Operating characteristics	WLH12, WL01H12	WLG12, WL01G12
OF	4.18 N	4.18 N
RF	0.42 N	0.42 N

Operating characteristics	WLH2 WL01H2	WLG2 WL01G2	WLH12 WL01H12 (See note 1.)	WLG12 WL01G12 (See note 1.)	WLHL WL01HL (See note 3.)	WLGL WL01GL (See note 3.)	WLHAL4 WL01HAL4 (See note 4.)	WLHAL5 WL01HAL5
OF max.	9.81 N	9.81 N	9.81 N	9.81 N	2.84 N	2.84 N	0.98 N	0.90 N
RF min.	0.98 N	0.98 N	0.98 N	0.98 N	0.25 N	0.25 N	0.15 N	0.09 N
PT	15±5°	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	15±5°	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	15±5°	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	15±5°	15±5°
OT min.	55°	65°	55°	65°	55°	65°	55°	55°
MD max.	12°	7°	12°	7°	12°	7°	12°	12°

Note 1. With WLHAL4, WL01HAL4, WLHAL5, and WL01HAL5, the actuator's tare is large, so depending on the installation direction, they may not be properly reset. Always install so that the actuator is facing downwards.

2. The operating characteristics of WLH12, WL01HL12, WLG12, and WL01G12 are measured at the lever length of 38 mm.

3. The operating characteristics of WLHL, WL01HL, WLGL, and WL01GL are measured at the rod length of 140 mm.

4. The operating characteristics of WLHAL4, and WL01HAL4 are measured at the rod length of 380 mm.

■ Standard Models

Overtravel

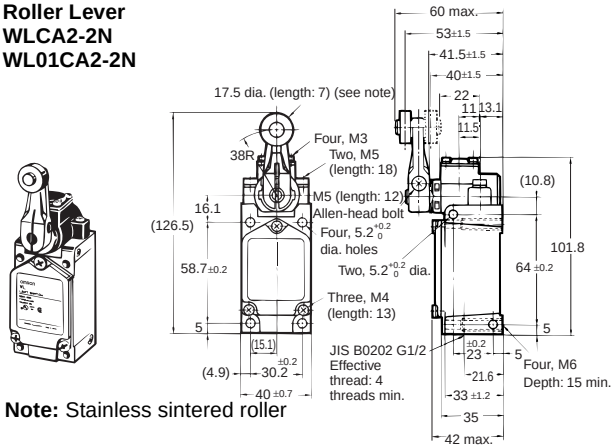
Side-installation Models

Note 1. For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.

2. With the side-installation models, 90° operation on one side is possible by simply changing the direction of the cam.

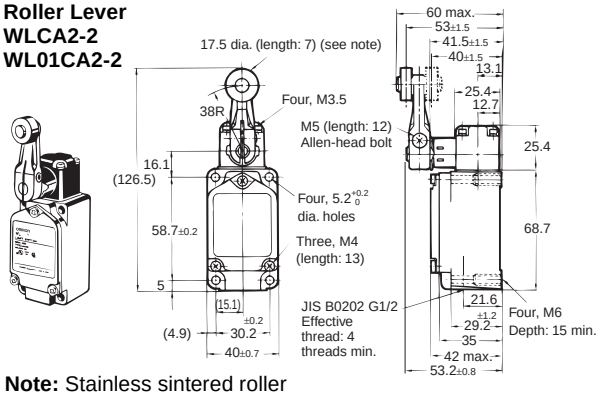
3. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Roller Lever
WLCA2-2N
WL01CA2-2N



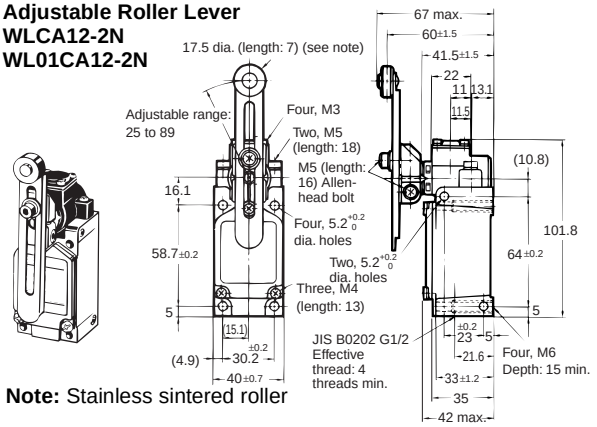
Note: Stainless sintered roller

Roller Lever
WLCA2-2
WL01CA2-2



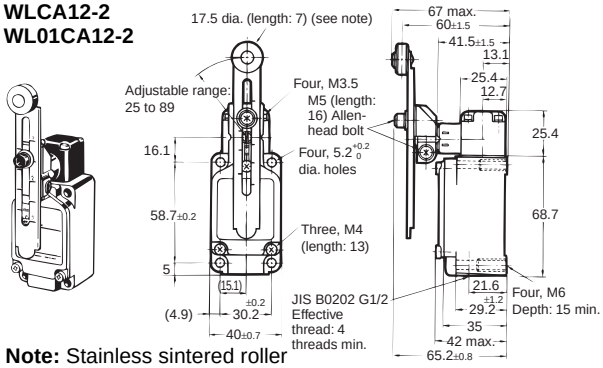
Note: Stainless sintered roller

Adjustable Roller Lever
WLCA12-2N
WL01CA12-2N



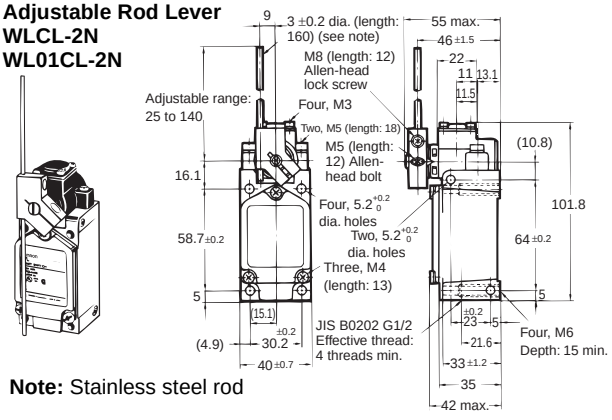
Note: Stainless sintered roller

Adjustable Roller Lever
WLCA12-2
WL01CA12-2



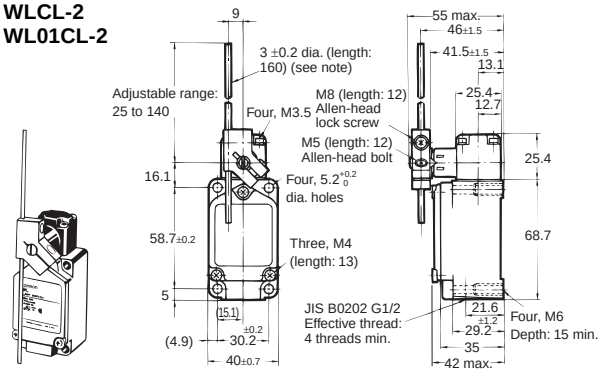
Note: Stainless sintered roller

Adjustable Rod Lever
WLCL-2N
WL01CL-2N



Note: Stainless steel rod

Adjustable Rod Lever
WLCL-2
WL01CL-2



Operating characteristics	WLCA2-2N WL01CA2-2N	WLCA12-2N WL01CA12-2N (See note 1.)	WLCL-2N WL01CL-2N (See note 2.)	WLCA2-2 WL01CA2-2	WLCA12-2 WL01CA12-2 (See note 1.)	WLCL-2 WL01CL-2 (See note 2.)
OF max.	9.61 N	9.61 N	2.84 N	8.83 N	8.83 N	2.55 N
RF min.	1.18 N	1.18 N	0.25 N	0.49 N	0.49 N	0.1 N
PT	20°	20°	20°	25°±5°	25°±5°	25°±5°
OT min.	70°	70°	70°	60°	60°	60°
MD max.	10°	10°	10°	16°	16°	16°

OF and RF for WLCA12-2N and WL01CA12-2N, with a lever length of 89 mm.

Operating characteristics	WLCA12-2N, WL01CA12-2N
OF	4.10 N
RF	0.50 N

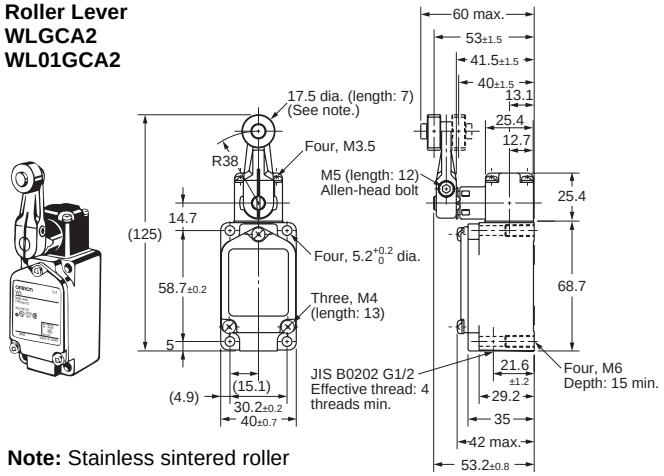
Note 1. The operating characteristics of WLCA12-2N and WL01CA12-2N are measured at the lever length of 38 mm.

2. The operating characteristics of WLCL-2N and WL01CL-2N are measured at the rod length of 140 mm.

High-precision Models

WL□ are Standard Models and WL01□ are Microload Models.

Roller Lever
WLGCA2
WL01GCA2



Note: Stainless sintered roller

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

Operating characteristics	WLGCA2 WL01GCA2
OF max.	13.34 N
RF min.	1.47 N
PT	5 +2° 0°
OT min.	40°
MD max.	3°

■ Sensor I/O Connector Switches

Direct-wired Connector/Prewired Connector Models

Note: Refer to page 188 for applicable Cables.

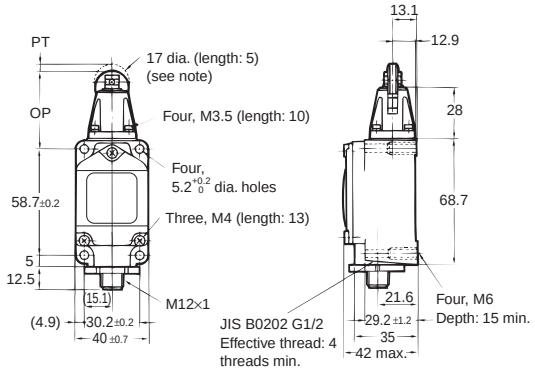
Top-roller Plunger

WLD2

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

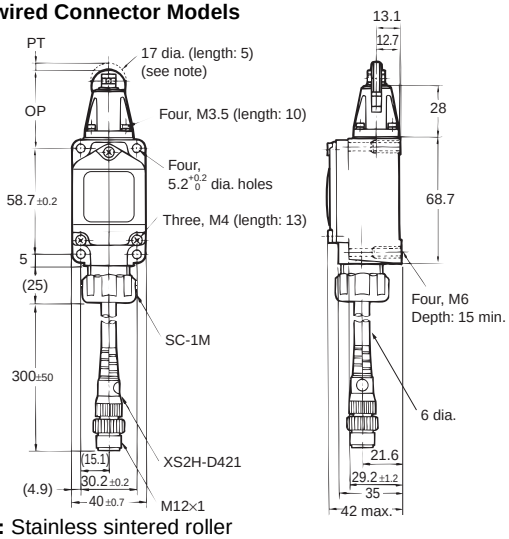
2. The following diagrams are for a indicator-equipped models.

Direct-wired Connector Models



Note: Stainless sintered roller

Pre-wired Connector Models



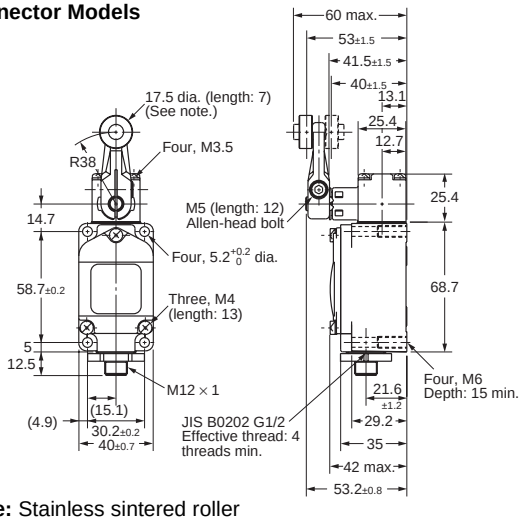
Note: Stainless sintered roller

Roller Lever Plungers

WL□ are Standard Models and WL01□ are Microload Models.

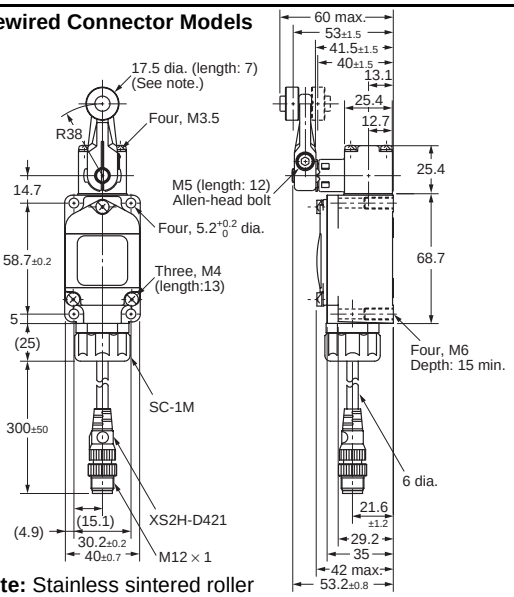
Standard Models (WLCA2), High-precision Models (WLGCA2), Overtravel General-purpose Models (WLH2), Overtravel High-sensitivity Models (WLG2)

Connector Models



Note: Stainless sintered roller

Prewired Connector Models



Note: Stainless sintered roller

Note 1. Only the dimension of the set position marker plate is different for WLG2 Models.

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

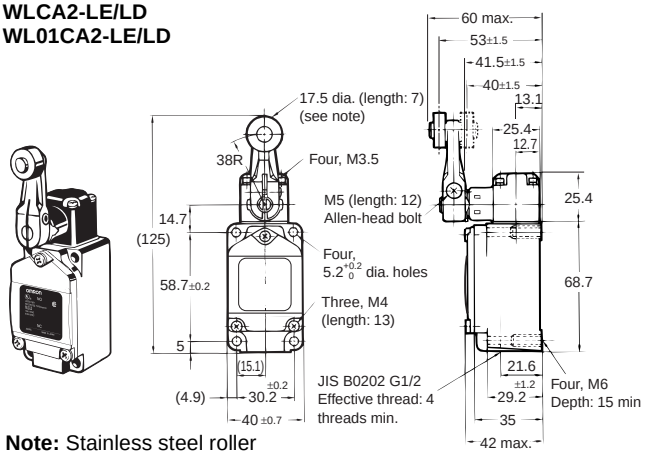
3. The models with operation indicators are shown in the above diagrams.

Operating characteristics	Standard roller lever actuator	High-precision roller lever actuator	Overdrive general-purpose actuator	Overdrive high-sensitivity actuator
OF max.	13.34 N	13.34 N	9.81 N	9.81 N
RF min.	2.23 N	1.47 N	0.98 N	0.98 N
PT max.	15±5°	5° +2° 0°	15±5°	10° +2° −1°
OT min.	30°	40°	55°	65°
MD max.	12°	3°	12°	7°

■ Indicator-equipped Models

Roller Lever

WLCA2-LE/LD
WL01CA2-LE/LD



Note: Stainless steel roller

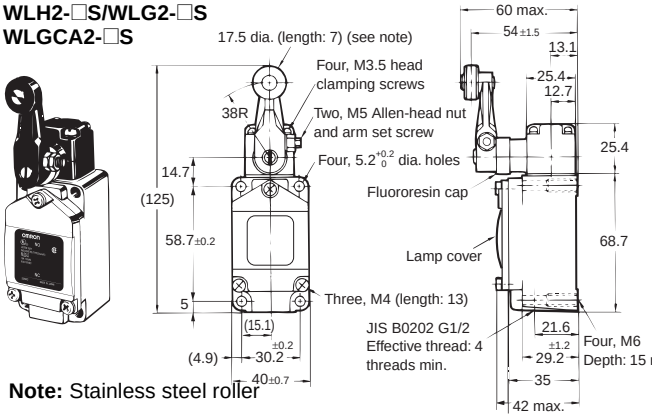
Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	WLCA2-LE/LD WL01CA2-LE/LD
OF max.	13.34 N
RF min.	2.23 N
PT	15±5°
OT min.	30°
MD max.	12°

Spatter-prevention Models

Roller Lever (Screw Terminals)

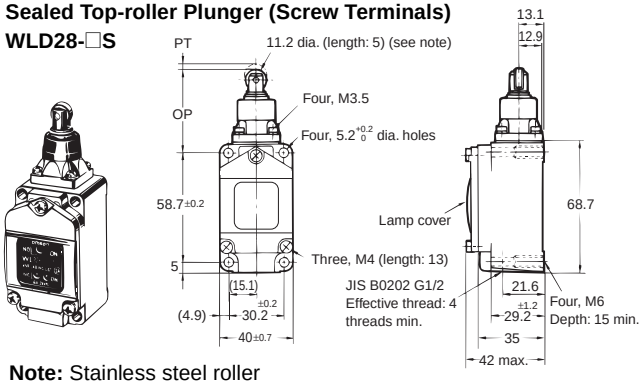
WLCA2-□S/WL01□-□S
WLH2-□S/WLG2-□S
WLGCA2-□S



Note: Stainless steel roller

Sealed Top-roller Plunger (Screw Terminals)

WLD28-□S

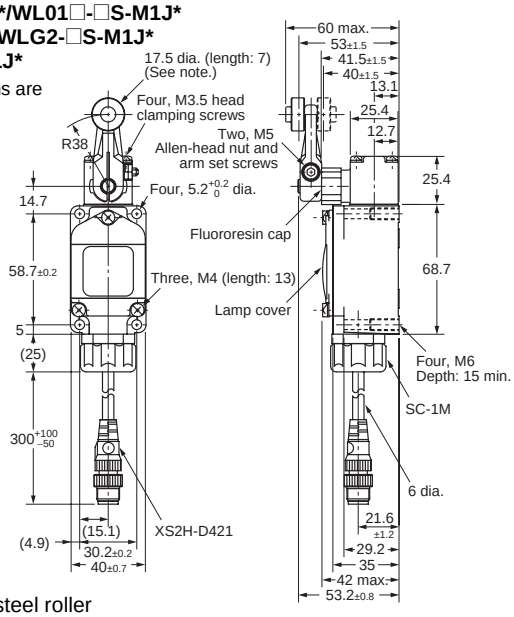


Note: Stainless steel roller

Roller Lever

WLCA2-□S-M1J*/WL01□-□S-M1J*
WLH2-□S-M1J*/WLG2-□S-M1J*
WLGCA2-□S-M1J*

*External dimensions are the same even for different core wires.

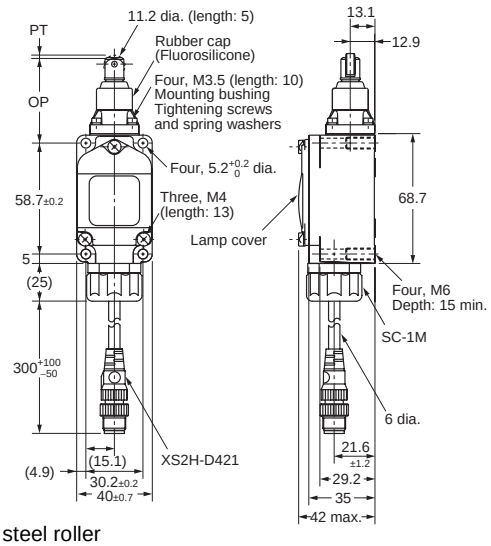


Note: Stainless steel roller

Sealed Top-roller Plunger

WLD28-□S-M1J*

*External dimensions are the same even for different core wires.



Note: Stainless steel roller

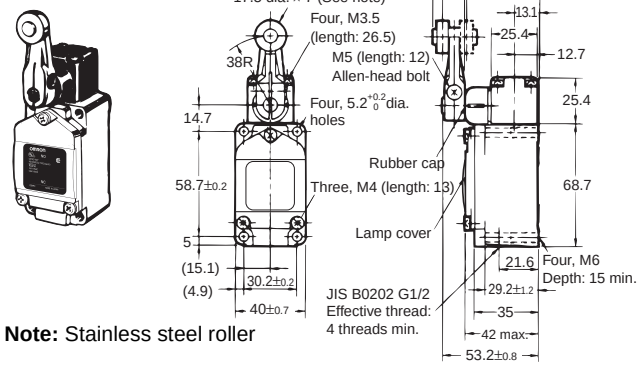
Note: Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

Operating characteristics	Roller Lever				Sealed Top-roller Plunger
	Basic	Overtravel models		High-precision	
		General-purpose	High-sensitivity		
OF max.	13.34 N	9.81 N	9.81 N	13.34 N	16.67 N
RF min.	2.23 N	0.98 N	0.98 N	1.47 N	4.41 N
PT	15°±5°	15°±5°	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	1.7 mm max.
OT min.	30°	55°	65°	40°	5.6 mm
MD max.	12°	12°	7°	3°	1 mm
OP	---	---	---	---	4±0.8 mm
TTP max.	---	---	---	---	39.5 mm

Long-life Models

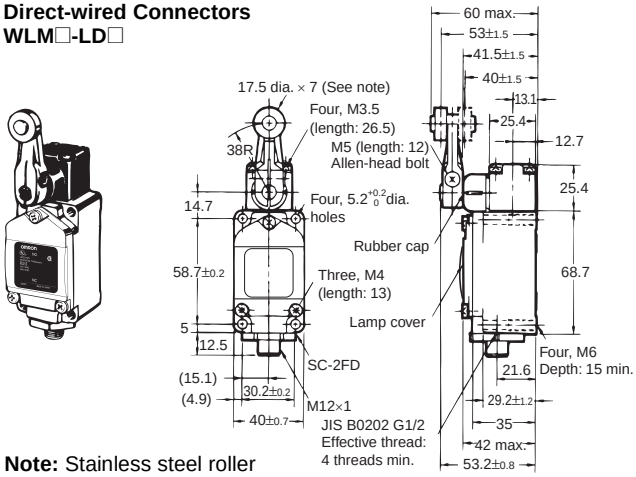
Rotating Lever Models

Screw Terminal
WLM□-LD



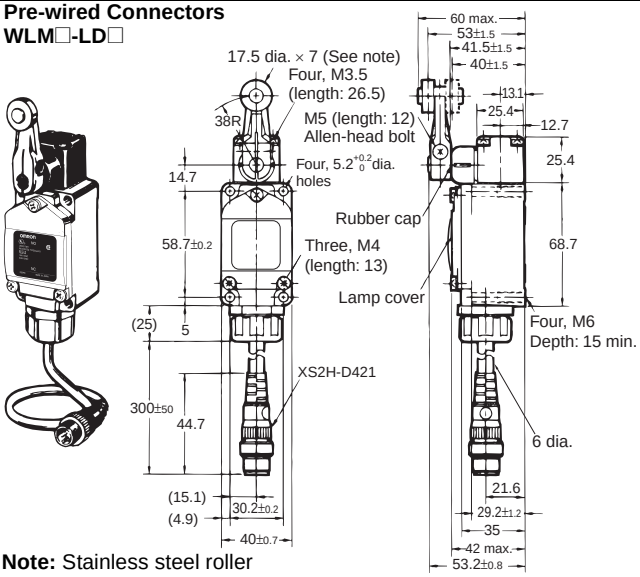
Note: Stainless steel roller

Direct-wired Connectors
WLM□-LD□



Note: Stainless steel roller

Pre-wired Connectors
WLM□-LD□



Note: Stainless steel roller

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

Operating characteristics	WLMCA2-LD□ Basic models	WLMH2-LD□ General-purpose overtravel models	WLMG2-LD□ High-sensitivity overtravel models	WLMGCA2-LD□ High-precision models
OF max.	9.81 N	9.81 N	9.81 N	13.34 N
RF min.	0.98 N	0.98 N	0.98 N	1.47 N
PT max.	15±5°	15±5°	$10^{\circ}{}^{+2^{\circ}}_{-1^{\circ}}$	$5^{\circ}{}^{+2^{\circ}}_{0^{\circ}}$
OT min.	30°	55°	65°	40°
MD max.	12°	12°	7°	3°

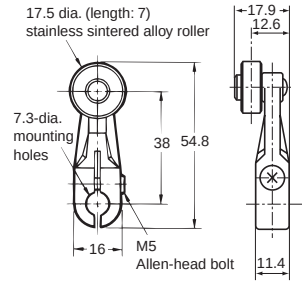
■ Actuators (Levers Only)

Note 1. Lever: Only rotating lever models are illustrated.

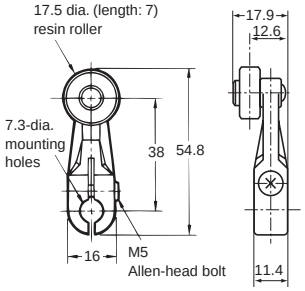
2. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

3. 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.

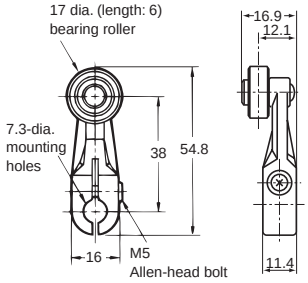
WL-1A100
Standard Lever



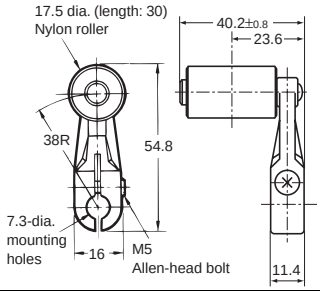
WL-1A115
Resin Roller



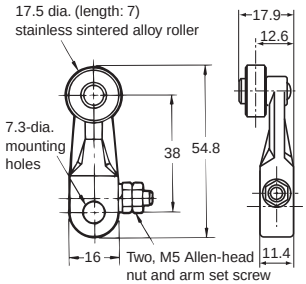
WL-1A400
Bearing Roller



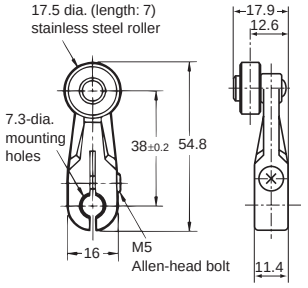
WL-1A118
Nylon Roller:
Roller Width: 30 mm



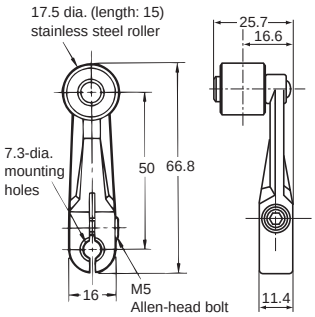
WL-1A105
Double Nut



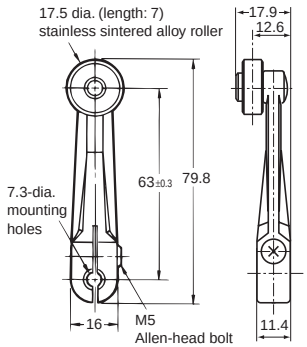
WL-1A103S
Spatter Prevention



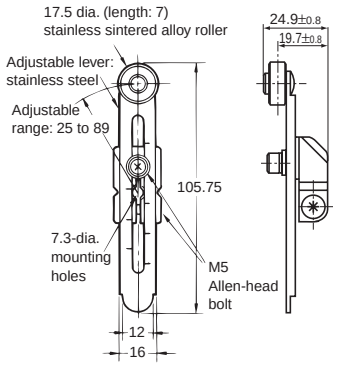
WL-1A200
Lever Length: 50
Roller Width: 15



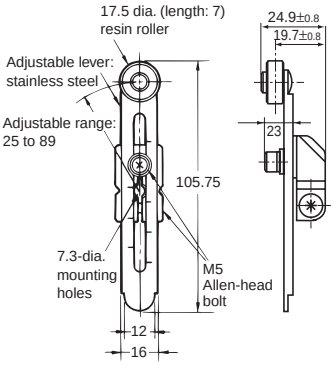
WL-1A300
Lever Length: 63



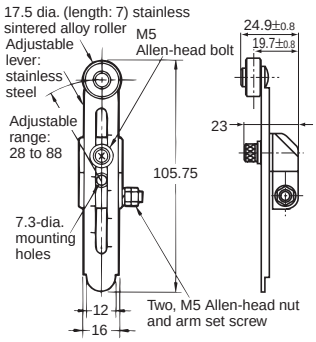
WL-2A100



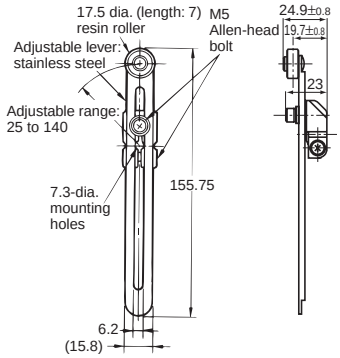
WL-2A111
Resin Roller



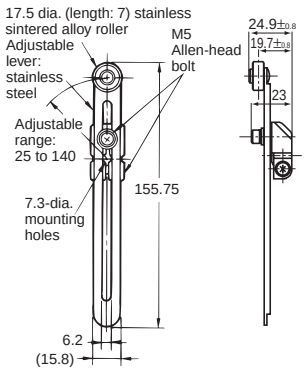
WL-2A107
Double Nut



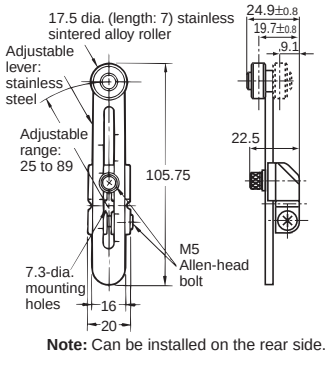
WL-2A108
Resin Roller



WL-2A122

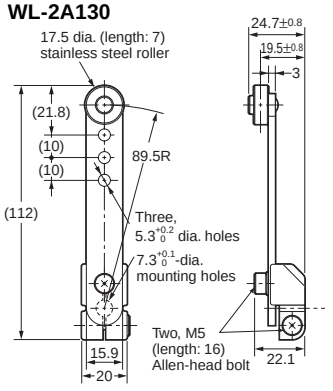


WL-2A106

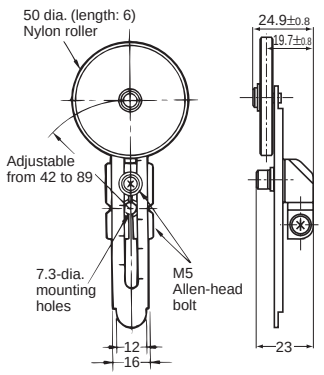


Note: Can be installed on the rear side.

WL-2A130



WL-2A104

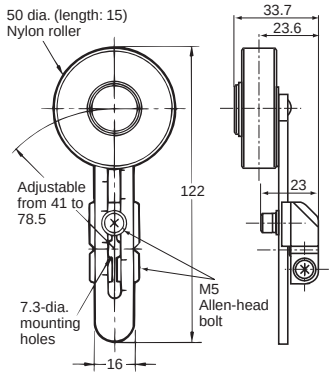


■ Actuators (Levers Only)

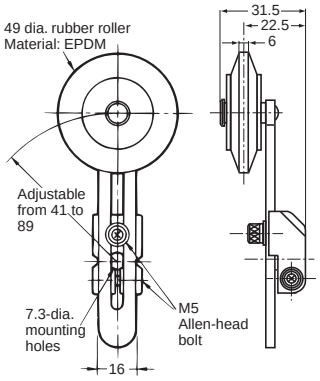
Note 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.

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.

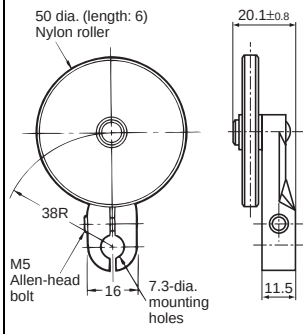
WL-2A110



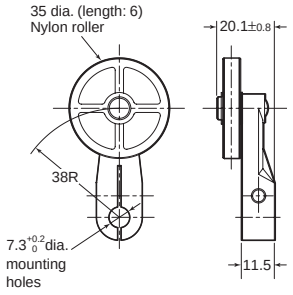
WL-2A105



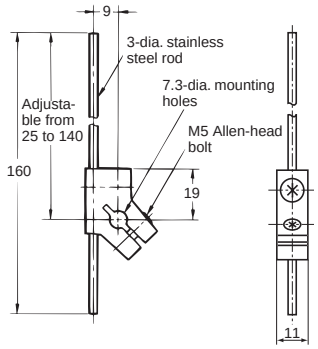
WL-1A106



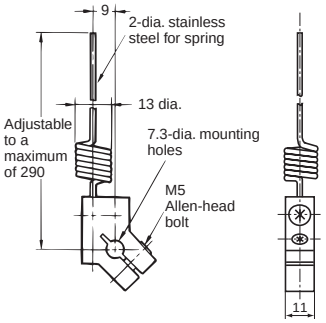
WL-1A110



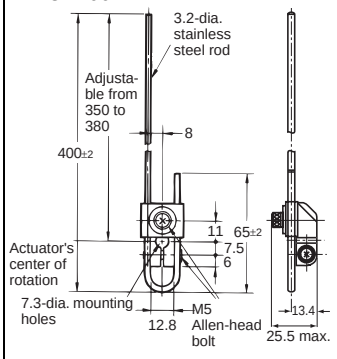
WL-4A100



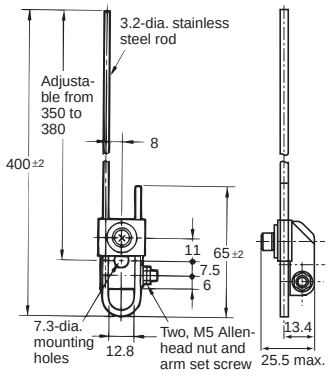
WL-4A201



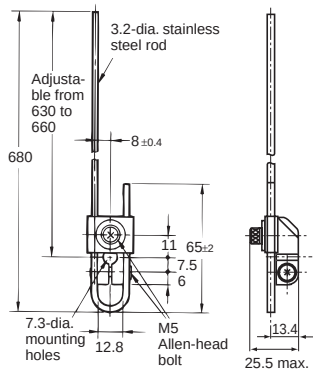
WL-3A100



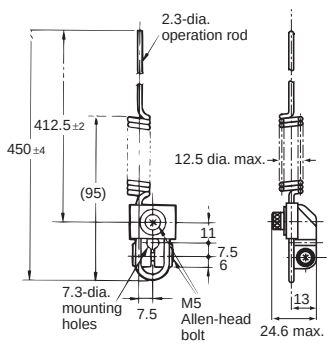
WL-3A106
Double Nut



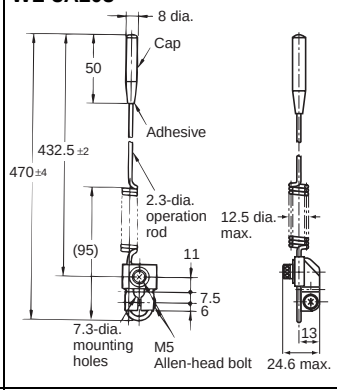
WL-3A108



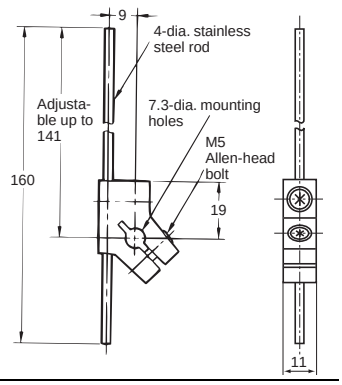
WL-3A200



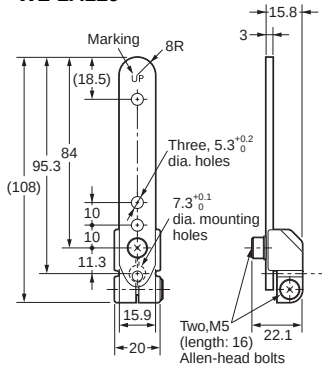
WL-3A203



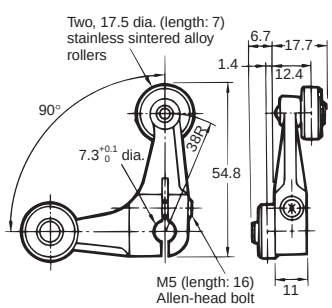
WL-4A112



WL-2A129

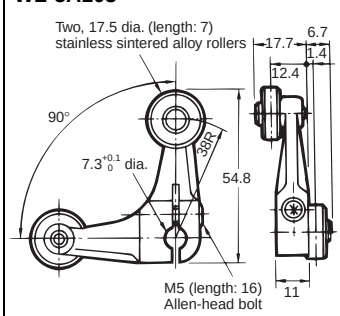


WL-5A101



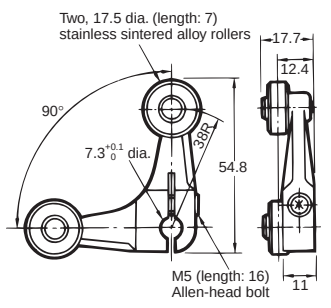
WL-5A100 has a plastic roller

WL-5A103



WL-5A102 has a plastic roller

WL-5A105



WL-5A104 has a plastic roller

Precautions

Refer to the *"Precautions for General-purpose Limit Switches (Including Multiple Limit Switches, Mechanical Touch Switches, High-precision Switches, Touch Switches, On-site Flexible Switches; Not Including Safety Switches)" on page 17.*

■ Correct Use

When a rod or wired-type actuator is used, do not touch the top end of the actuator. Doing so may result in injury.
Applicable models: WLHAL5 and WL01HAL5 Rod Spring Levers and WLNJ-S2 and WL01NJ-S2 Steel-wire Actuators.

A short-circuit may cause damage to the Switch, so insert a circuit breaker fuse, of 1.5 to 2 times the rated current, in series with the Switch.

In order to meet EN approval ratings, use a 10-A fuse that corresponds to IEC269, either a gI or gG for general-purpose types and spatter-prevention models only.

Precautions for Correct Use

When wiring terminal screws, use M4 round crimp terminals and tighten screws to the recommended torque. Wiring with bare wires, or incorrect crimp terminals, or not tightening screws to the recommended torque can lead to short-circuits, leakage current, and fire.

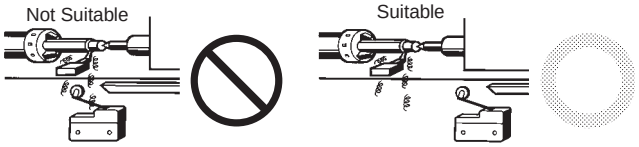
When performing internal wiring there is a chance of short-circuit, leakage current, or fire, so be sure to protect the inside of the Switch from splashes of oil or water, corrosive gases, and cutting powder.

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 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.

Operating Environment

- 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_2) 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 killers) or remove the source of silicon gas.

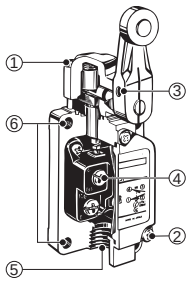
Built-in Switch

Do not remove or replace the built-in switch. If the position of the built-in switch moves, it can cause reduced performance, and if the insulation sheet moves (separator), the insulation may become ineffective.

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 correct torque.

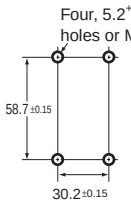
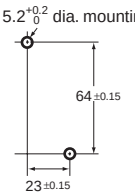
In particular, when changing the direction of the Head, make sure that all screws are tightened again to the correct torque. Do not allow foreign objects to fall into the Switch.



No.	Type	Torque
①	Head mounting screw	0.78 to 0.88 N·m
②	Cover mounting screw	1.18 to 1.37 N·m
③	Allen-head bolt (for securing the lever)	4.90 to 5.88 N·m
④	Terminal screw	0.59 to 0.78 N·m
⑤	Connector	1.77 to 2.16 N·m
⑥	Main Unit screws	4.90 to 5.88 N·m

Installing the Switch

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

General-purpose Models, Spatter-prevention Models, and Long-life Models	Side installation for 90° Operation Models
	

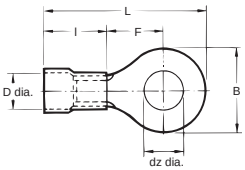
Connectors

Either the easy-to-use Allen-head nut or the SC Connector can be used as connectors. To ensure high-sealing properties, use the SC Connector. Consult your OMRON representative for details.

Wiring

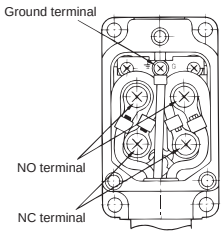
Use 1.25-mm lead wires and M4-insulation covered crimp terminals for wiring.

Crimp Terminal External Dimensions



dz dia.: 4.3
D dia.: 4.5
B: 8.5
L: 21.0
F: 7.8
ℓ: 9.0 (mm)

Wiring Method Switch Box Section



Note: The ground terminal is only installed on models with ground terminals.

Rotating Lever Set Position (General-purpose or Spatter-prevention Switches Only)

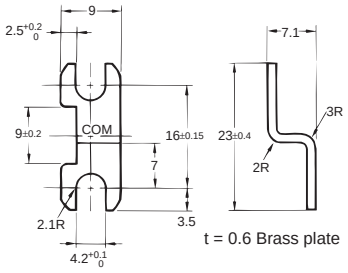
All rotating lever models, except the fork lever lock models, have a set position marker plate. (See page 54.) After operation, set the indicator needle on the marker plate so that is in the convex section of the bearing.

Operation Set Position (Long-life Switches Only)

For all Long-life Switching, there is a set position marker slit on the rubber cap of the head. After operation, set the slit on the rubber cap so that the fluorescent color on the shaft section can be seen.

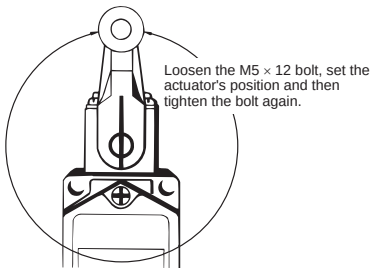
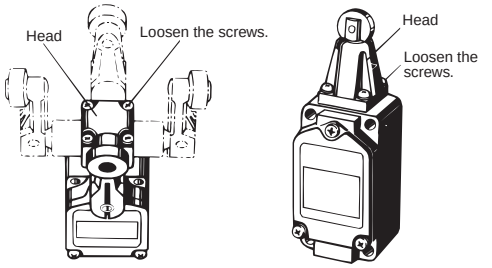
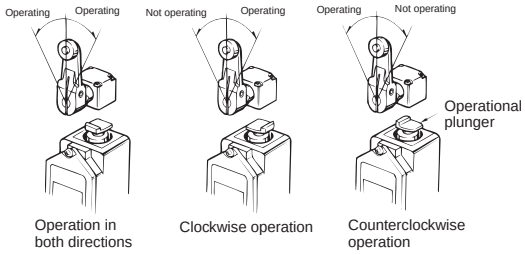
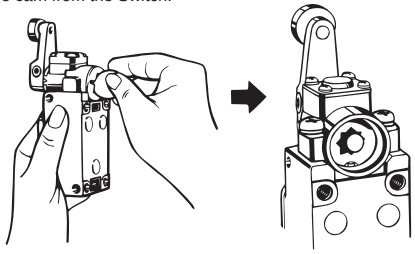
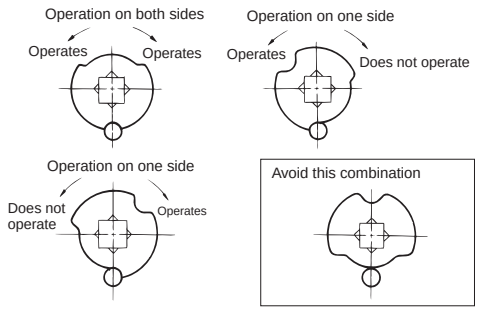
Terminal Plate

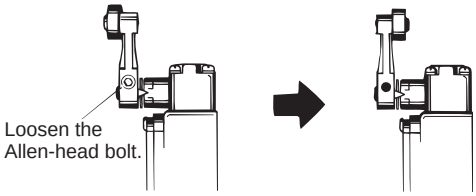
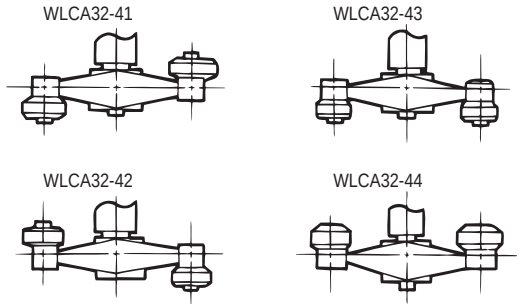
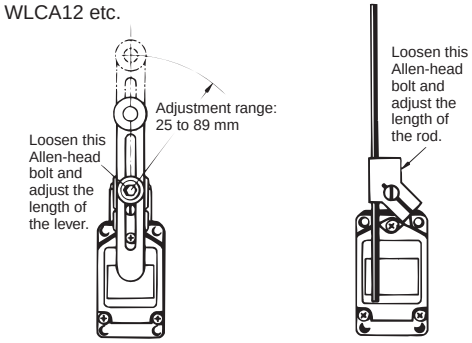
By using a short circuit plate, as shown in the following diagram, the Switch can be fabricated into a single-polarity double-break switch. When ordering, specify WL Terminal Plate (product code: WL-9662F).



t = 0.6 Brass plate

Installation

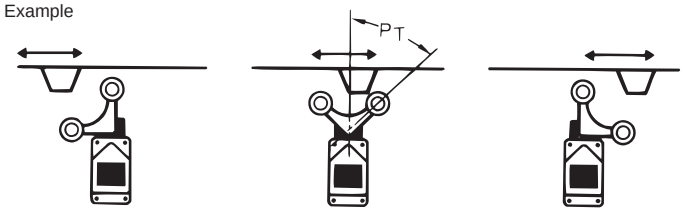
Item	Applicable models and Actuators	Details
Changing the Installation Position of the Actuator By loosening the Allen-head bolt on the actuator lever, the position of the actuator can be set anywhere within the 360°. With Indicator-equipped Switches, the actuator lever comes in contact with the top 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 (except for long-life models).	Roller Levers: WLCA2, WL01CA2, WLCA2-2, WL01CA2-2, WLH2,WL01H2, WLG2, WL01G2, WLMCA2□, WLMH2□, WLMG2□, WLMGCA2□ Adjustable Roller Levers: WLCA12, WL01CA12, WLCA12-2, WL01CA12-2, WLH12, WL01H12, WLG12, WL01G12, Adjustable Rod Levers: WLCL, WL01CL, WLCL-2, WL01CL-2, WLHL, WL01HL, WLGL, WL01GL	
Changing the Orientation of the Head By removing the screws in the four corners of the Head, the Head can be set in any of the four directions. Be sure to change the plunger for internal operations at the same time. (The operational plunger does not need to be changed on general-purpose and high-sensitivity overtravel models.) The roller plunger can be set in either two positions at 90°. WLCA2-2N and WL01CA2-2N can be set only in either the forward or backward direction.	Roller Levers: WLCA□, WL01CA□, WLCA□-2, WL01CA□-2, WLGCA□, WLMCA2□, WLMH2□, WLMG2□, WLMGCA2□ Adjustable Rod Levers: WLCL, WL01CL, WLCL-2, WL01CL-2 Horizontal Plungers: WLSD□, WL01SD□ Top-roller Plungers: WLD2, WL01D2 Sealed Top-roller Plungers: WLD28, WL01D28 **Note:** Does not include -RP60 Series or -141 Series.	
Changing the Operating Direction 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. For overtravel 90° operation models, one of three operating directions can be selected by loosening the rubber holder using either a coin or a flat-blade screwdriver and changing the direction of the internal rubber section. The tightening torque for the screws on the Head is 0.78 to 0.88 N·m.	Roller Levers: WLCA2, WL01CA2, WLGCA2, WLMGCA2□ Adjustable Roller Levers: WLCA12, WL01CA12 Adjustable Rod Levers: WLCL, WL01CL Overtravel Models: WLCA□-2N, WL01CA□-2N	One-side Operation for General-purpose and High-precision Switches 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.  Cam Direction Changing Procedure for Overtravel, 90° Operation Switches Loosen the cam holder with a coin or screwdriver. Take out the cam from the Switch. Change the direction of the cam as required by your intended operation and then reinstall the cam.  Relationship of cam to operation as observed from the rear of Switch 

Item	Applicable models and Actuators	Details
Installing the Roller on the Inside 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.)	Roller Levers: WLCA□, WL01CA□, WLH□, WLCA□-2, WL01CA□-2, WLMCA2□, WLMH2□, WLMG2□, WLMGCA2□, WLG□, except for the adjustable roller levers. Fork Lever Locks: WLCA32-4□, WL01CA32-4□	
Selecting the Roller Position There are four types of fork lever lock for use depending on the roller position.	Fork Lever Locks: WLCA32-4□, WL01CA32-4□	 **Note:** An explanation of the operation of fork lever locks is provided after this table.
Adjusting the Length of the Rod or Lever The length of the rod or lever can be adjusted by loosening the Allen-head bolt.	Adjustable Roller Levers: WLCA12, WL01CA12 etc. Adjustable Rod Levers: WLCL, WL01CL, etc.	

■ Operation of Fork Lever Locks

The fork lever lock is configured so that the dog pushes the lever to reverse the output and this reversed state is maintained even after the dog continues on. If the dog then pushes the lever from the opposite direction, the lever will return to its original position.

Example



NC terminal: ON NO terminal: ON NO terminal: ON

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. C133-E1-02

In the interest of product improvement, specifications are subject to change without notice.