Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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

WL/WLM

CSM_WL_WLM_DS_E_13_1

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.
- Approved standards: EC/IEC, UL, CSA, CCC (Chinese standard).
  Contact your OMRON representative for information on approved models.

Be sure to read *Safety Precautions* on page 39 to 42 and *Safety Precautions for All Limit Switches*.

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

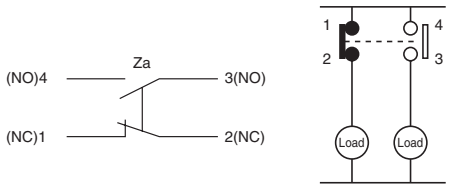
Long-life Models for High-frequency Applications

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.



Degree of Protection; IP67

O-rings, cover seals, and other measures provide a water-proof, 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*

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

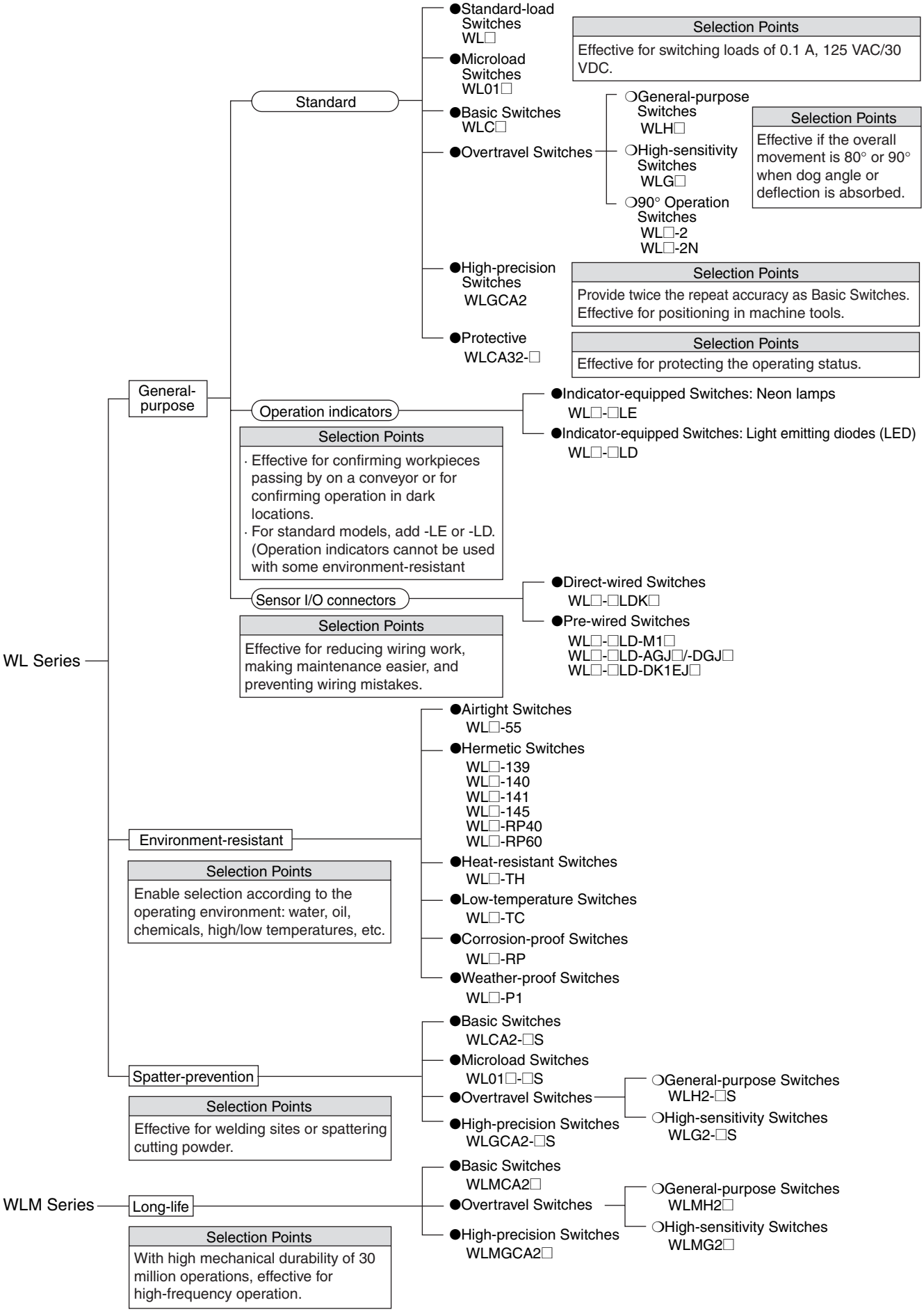
* Operation indicators are provided on Indicator-equipped switches, Spatter-prevention Basic Switches, and Long-life Basic Switches.

Models with Connectors to Reduce Wiring

Reduce wiring with one-touch connection. Models with direct-wired and prewired connectors that make Switch replacement easier are also available.

Product Configuration

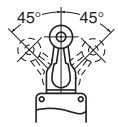
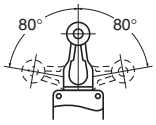
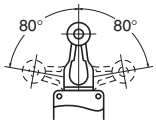
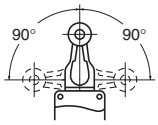
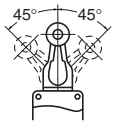
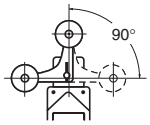
Selection by Purpose



Tables of Models

General-purpose Switches | **Spatter-prevention Switches** | **Long-life Switches**

Heads (Roller levers only)

Type	General purpose	Features	Head specifications		Spatter prevention	Long-life
	Model	Total travel (TT)	One-side operation	Head mounting	Model	Model
Basic	**WLC□**	• With a Roller Lever 	Possible *1 (Except for long-life models.)	Any of 4 directions	**WLCA2-□S**	**WLMCA2□**
General-purpose Overtravel	**WLH□**	• Overtravel is large, making setting the dog easier. • Mounting is compatible with WLH2. 	Not possible *2	Any of 4 directions	**WLH2-□S**	**WLH2□**
High-sensitivity Overtravel	**WLG□**	• Operation is highly sensitive with only 10° pretravel. • Overtravel is large, making setting the dog easier. • Mounting is compatible with WLG2. 	Not possible *2	Any of 4 directions	**WLG2-□S**	**WLMG2□**
Overtravel, 90° operation	**WL□-2**	• Overtravel is large, making setting the dog easier. • Mounting is compatible with WLCA2-2. 	Not possible *2	Any of 4 directions	—	—
	WL□-2N		Possible *1	Either of 2 directions		
High-precision	**WLGCA2**	• Repeat accuracy is twice that basic models. • Operation is highly sensitive with only 5° pretravel. • Ideal for positioning, e.g., 	Possible *1	Any of 4 directions	**WLGCA2-□S**	**WLMGCA2□**
Maintained	**WLCA32-□**	• 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	—	—

*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

Item		Environment-resistant		
Type	Model	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 25 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 *	**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 *	**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. • The Head, box, and cover are yellow.	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 basic (WLCA2/CA12/CL), general-purpose overtravel (WLH2/H12/HL) and high-sensitivity overtravel (WLG2/G12/GL) models (excluding heat-resistant models).

* 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 *1
	Low-temperature	−40°C +40°C To increase resistance to cold, silicon rubber and other measures are used.	WL□-TC	Low-temperature Switches *1
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 *1
	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 *1
	Water drops and mist	Uses an airtight built-in switch.	WL□-55	Airtight Switches *1
	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 *1, *2	
		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 *1, *2	
		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 *1, *2	
	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 Hermetic, Molded-terminal Switches *1, *2 (Only the WLCA2, WLG2, WLGCA2, and WLH2 can be produced.)	
	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, Molded-terminal Switches *1, *2	
	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

*1. Not all functions can be combined with environment-resistant switches. Refer to the applicable models on the previous page.
*2. Refer to page 25 for information on the construction of Hermetic Switches.

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

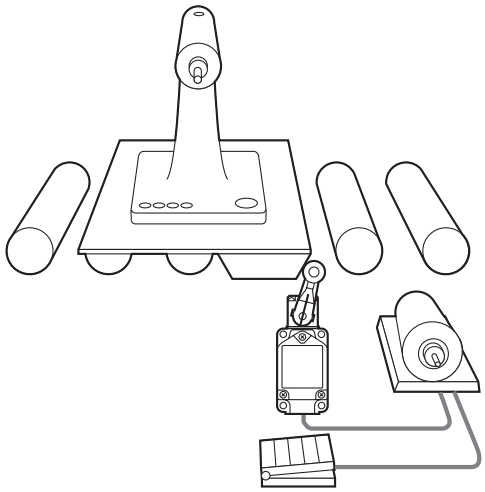
	Conditions	Key specifications	Models
Operation indicator	Daily inspections and maintenance checks	Switching light-ON between operating/not operating. (Switching not possible for models with molded terminals.) Neon lamp 125 to 250 VAC	WL□-LE General-purpose, Indicator-equipped (Neon Lamp) Switches WL□-LES Spatter-prevention, Indicator-equipped (Neon Lamp) Switches
Operation indicator	Daily inspections and maintenance checks	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: G1/2	WL□ General-purpose Switches WLM□ Long-life Switches
Wiring specification	Screw tightening and installation	Screw terminals. Ground terminal. Conduit size: 4 sizes	WL□ General-purpose Switches
Wiring specification	One-touch connector attachment	Direct-wired connector, 2-conductor. Greatly reduces wiring work. Water-proof to IP67.	WL□-□LDK13 General-purpose, Direct-wired Connector Switches WLM□-LDK13 Long-life, Direct-wired Connector Switches
Wiring specification	One-touch connector attachment	Direct-wired connector, 4-conductor. Greatly reduces wiring work. Water-proof 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-conductor. Greatly reduces wiring work. Water-proof 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	Connector attachment in control and relay boxes	Pre-wired connector, 4-conductor. Greatly reduces wiring work. Water-proof 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

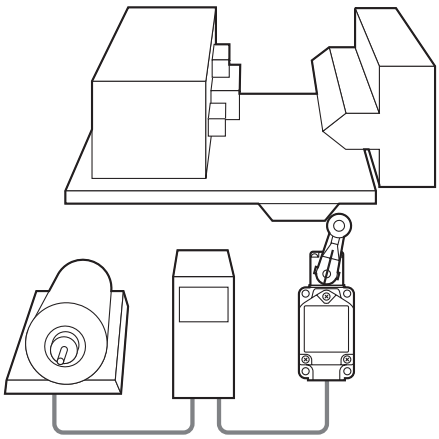
	Detection object	Key specifications	Models	
Operation angles	General	TT (total travel) 45° 45°; PT (pretravel) 15°	WLCA2 WLCA2-□S WLMCA2	General-purpose Switches Spatter-prevention Switches Long-life Switches
	Passing dogs	80° 80°; 15°	WLH2 WLH2-□S WLMH2	General-purpose Switches Spatter-prevention Switches 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

Application Examples

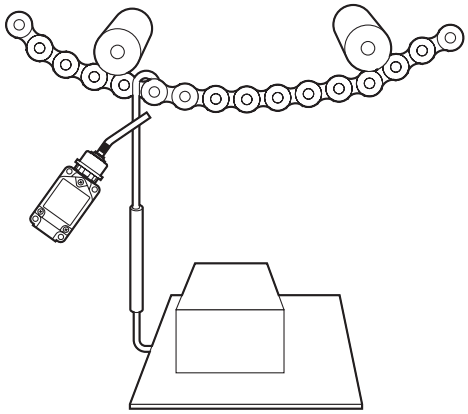
Positioning on Production Lines



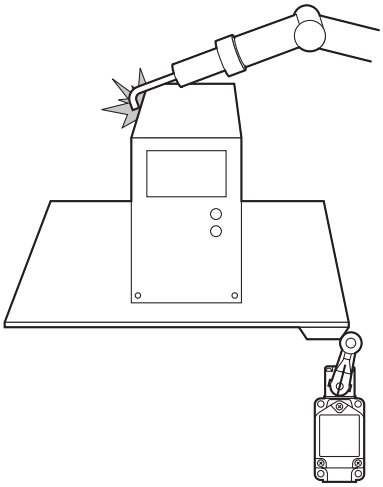
High-precision Positioning of Machine Tools



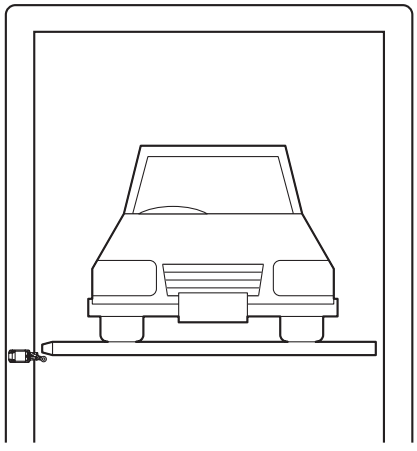
Positioning on Suspended Conveyors



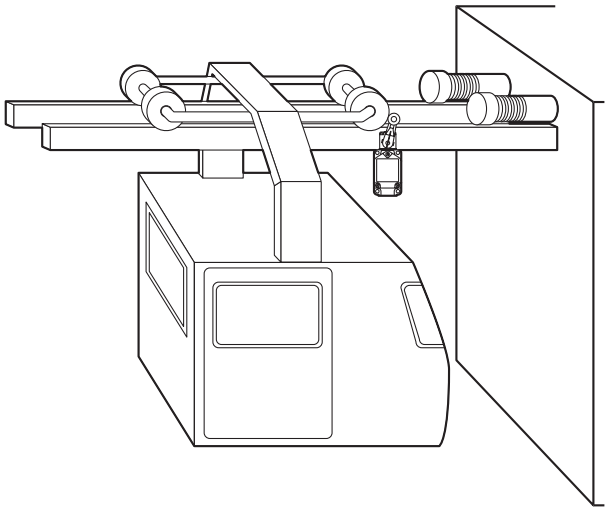
Pallet Detection in Arc Welding Lines



Multilevel Car Parking Towers



Limit Detection is Transport Systems



Model Number Structure

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

General-purpose and Environment-resistant Switches

WL □□-□□□□□□□□□□
(1) (2) (3) (4) (5) (6) (7) (8) (9)(10)

(1) Electrical Rating

Blank	Standard load
01	Microload

Note: Dimensions are the same as the standard models.

(3) Environment-resistant Model Specifications

Blank	Standard
RP	Corrosion-proof *1
P1	Weather-proof *1

Note: Dimensions are the same as the standard models.
*1. Refer to page 4 for applicable models.

(4) Built-in Switch Type

Blank	Standard
55	Hermetically sealed *1

Note: Dimensions are the same as the standard models.
*1. Refer to page 4 for applicable models.

(5) Temperature Specifications

Blank	Standard: –10°C to +80°C
TH	Heat-resistant: +5°C to +120°C *1
TC	Low-temperature: –40°C to +40°C *1

Note: Dimensions are the same as the standard models.
*1. Refer to page 4 for applicable models.

(7) Conduit Size, Ground Terminal Specifications *2

Blank	G1/2 without ground terminal
G1	G1/2 with ground terminal
G	Pg13.5 with ground terminal
Y	M20 with ground terminal
TS	1/2-14NPT with ground terminal

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

(2) Actuator and Head Specifications

Symbol	Actuator type	Switch without lever
CA2	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°	WLRCA2-2
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°	WLRCA2-2
CA12-2N	Adjustable roller lever: Overtravel, 90°	WLRCA2-2N
CL	Adjustable rod lever: Standard, 25 to 140 mm	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	WLRCA2-2
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: Maintained, WL-5A100	WLRCA32
CA32-42	Fork lever lock: Maintained, WL-5A102	WLRCA32
CA32-43	Fork lever lock: Maintained, 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). *
140	Airtight built-in switch with cables attached and molded conduit opening, cover, and box interior cover screws (cover cannot be removed). *
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. *
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. *
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. *
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). *

* Refer to page 4 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	115 VAC/VDC	Approx. 0.5 mA
		10 to 24 VAC/VDC	Approx. 0.4 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.

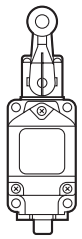
(10) Lever Type

Blank	Standard lever
A	Double nut lever

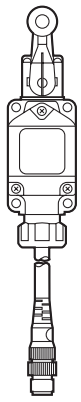
General-purpose Switches

Sensor I/O Connector Switches

WL □□-□ LD □
(1) (2) (3) (4) (5)



Direct-wired Connector



Pre-wired Connector

(1) Electrical Rating

Blank	Standard load
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 over-travel model
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, 10 to 115 VAC/DC

(5) Wiring Specifications

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

*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 load
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 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

Blank	Screw terminal: G1/2 conduit
-M1J-1 *1	Pre-wired Connector *2 (2-conductor: DC, NO wiring, connector pins No. 3, 4)
-M1GJ-1 *1	Pre-wired Connector *2 (2-conductor: DC, NO wiring, connector pins No. 1, 4)
-DGJS03 *1	Pre-wired Connector *2 (4-conductor: DC)

*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, 10 to 115 VAC/DC

(3) Wiring Specifications

Blank	Screw terminal: G1/2 conduit
K13A	Direct-wired Connector: 2-conductor, AC
K13	Direct-wired Connector: 2-conductor, DC
K43A	Direct-wired Connector: 4-conductor, AC
K43	Direct-wired Connector: 4-conductor, DC
-M1J	Pre-wired Connector: 2-conductor, DC *
-AGJ03	Pre-wired Connector: 4-conductor, AC *
-DGJ03	Pre-wired Connector: 4-conductor, DC *

* With 0.3-m cable attached.

Ordering Information

General-purpose Switches

Standard Switches

Note: Models are also available with ground terminals.

Lever

Item			Actuator: Roller lever R38 — Model	Roller lever R50 — Model	Roller lever R63 — 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			Actuator: Adjustable roller lever — Model	Adjustable rod lever 25 to 140mm — Model	Adjustable rod lever 350 to 380mm — Model	Rod spring lever — 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			Actuator: 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	Fork lever lock (with WL-5A104 plastic roller lever) — Model
Maintained		Standard load	WLCA32-41	WLCA32-42	WLCA32-43	WLCA32-44
		Microload	WL01CA32-41	—	WL01CA32-43	WL01CA32-44

Plunger

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

Item		Actuator: Horizontal plunger — Model	Horizontal-roller plunger — Model	Horizontal-ball plunger — Model
Side plunger	Standard load	WLSD	WLSD2	WLSD3
	Microload	WL01SD	WL01SD2	WL01SD3

Flexible Rod

Item		Actuator: Coil spring (spring diameter: 6.5) — Model	Coil spring (spring diameter: 4.8) — Model	Coil spring (resin rod diameter: 8) — Model	Steel wire (wire diameter: 1) — Model
Flexible rod	Standard load	WLNJ	WLNJ-30	WLNJ-2	WLNJ-S2
	Microload	WL01NJ	WL01NJ-30	WL01NJ-2	WL01NJ-S2

General-purpose Switches

Indicator-equipped Switches

Lever

Item		Actuator	Roller lever R38	Roller lever R50	Roller lever R63	Adjustable roller lever
			Model	Model	Model	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		Actuator	Adjustable rod lever 25 to 140 mm	Adjustable rod lever 350 to 380 mm	Rod spring lever
			Model	Model	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		Actuator	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
Maintained		Neon lamp	WLCA32-41LE	WLCA32-42LE	WLCA32-43LE
		LED	WLCA32-41LD	—	WLCA32-43LD

Plunger

Item		Actuator	Top plunger	Top-roller plunger	Top-ball plunger	Sealed top-roller plunger
			Model	Model	Model	Model
Top plunger		Neon lamp	WLD-LE	WLD2-LE	WLD3-LE	WLD28-LE
		LED	WLD-LD	WLD2-LD	WLD3-LD	WLD28-LD

Item		Actuator	Horizontal plunger	Horizontal-roller plunger	Horizontal-ball plunger
			Model	Model	Model
Side plunger		Neon lamp	WLSD-LE	WLSD2-LE	WLSD3-LE
		LED	WLSD-LD	WLSD2-LD	WLSD3-LD

Flexible Rod

Item		Actuator	Coil spring (spring diameter: 6.5)	Coil spring (spring diameter: 4.8)	Coil spring (resin rod diameter: 8)	Steel wire (wire diameter: 1)
			Model	Model	Model	Model
Flexible rod		Neon lamp	WLNJ-LE	WLNJ-30LE	WLNJ-2LE	WLNJ-S2LE
		LED	WLNJ-LD	WLNJ-30LD	WLNJ-2LD	WLNJ-S2LD

General-purpose Switches

Sensor I/O Connector Switches

Direct-wired Connectors

Actuator	Wiring				Built-in switch specification	Basic	Overtravel		High-precision
							General-purpose	High-sensitivity	
						Model	Model	Model	Model
Roller lever 	2-conductor	DC	NO	connector pins No. 3, 4	Standard	WLCA2-LDK13	WLH2-LDK13	WLG2-LDK13	WLGCA2-LDK13
					Airtight seal	WLCA2-55LDK13	WLH2-55LDK13	WLG2-55LDK13	WLGCA2-55LDK13
	4-conductor	DC			Standard	WLCA2-LDK43	WLH2-LDK43	WLG2-LDK43	WLGCA2-LDK43
					Airtight seal	WLCA2-55LDK43	WLH2-55LDK43	WLG2-55LDK43	WLGCA2-55LDK43
Top-roller plunger 	2-conductor	DC	NO	connector pins No. 3, 4	Standard	WLD2-LDK13	—	—	—
					Airtight seal	WLD2-55LDK13	—	—	—
	4-conductor	DC			Standard	WLD2-LDK43	—	—	—
					Airtight seal	WLD2-55LDK43	—	—	—

Pre-wired Connectors

Actuator	Wiring				Built-in switch specification	Basic	Overtravel		High-precision
							General-purpose	High-sensitivity	
						Model	Model	Model	Model
Roller lever 	2-conductor	DC	NO	connector pins No. 3, 4	Standard	WLCA2-LD-M1J	WLH2-LD-M1J	WLG2-LD-M1J	WLGCA2-LD-M1J
					Airtight seal	WLCA2-55LD-M1J	—	—	WLGCA2-55LD-M1J
				connector pins 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	connector pins No. 3, 2	Standard	—	—	WLG2-LD-M1JB	—
					Airtight seal	WLCA2-55LD-M1JB	—	WLG2-55LD-M1JB	WLGCA2-55LD-M1JB
	4-conductor	DC			Standard	WLCA2-LD-DGJ03	WLH2-LD-DGJ03	WLG2-LD-DGJ03	—
					Airtight seal	WLCA2-55LD-DGJ03	—	WLG2-55LD-DGJ03	WLGCA2-55LD-DGJ03
	3-conductor	DC		connector pins No. 2, 3, 4	Standard	WLCA2-LD-DK1EJ03	—	WLG2-LD-DK1EJ03	—
					Airtight seal	WLCA2-55LD-DK1EJ03	—	WLG2-55LD-DK1EJ03	—
Top-roller plunger 	2-conductor	DC	NO	connector pins No. 3, 4	Standard	WLD2-LD-M1J	—	—	—
					Airtight seal	WLD2-55LD-M1J	—	—	—
				connector pins No. 1, 4	Standard	WLD2-LD-M1GJ	—	—	—
					Airtight seal	WLD2-55LD-M1GJ	—	—	—
			NC	connector pins No. 3, 2	Standard	—	—	—	—
					Airtight seal	WLD2-55LD-M1JB	—	—	—
	4-conductor	DC			Standard	WLD2-LD-DGJ03	—	—	—
					Airtight seal	—	—	—	—
	3-conductor	DC		connector pins 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					Actuator: 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					WLCA2-TC	WLH2-TC	WLG2-TC
Corrosion-proof					WLCA2-RP	WLH2-RP	WLG2-RP
Weather-proof					WLCA2-P1	WLH2-P1	WLG2-P1

Item					Actuator: Roller lever R38		
					Overtravel		High-precision
					90° (-2 model)	90° (-2N model)	
					Model	Model	Model
Airtight seal			No indicator		WLCA2-255	WLCA2-2N55	WLGCA2-55
			Indicator	LED	WLCA2-255LD	WLCA2-2N55LD	WLGCA2-55LD
				Neon	WLCA2-255LE	WLCA2-2N55LE	WLGCA2-55LE
Hermetic seal	Molded terminals	-139	No indicator		WLCA2-2139	WLCA2-2N139	WLGCA2-139
			Indicator	NC wiring	WLCA2-2139LD2	—	WLGCA2-139LD2
				NO wiring	WLCA2-2139LD3	—	WLGCA2-139LD3
		-140	No indicator		—	WLCA2-2N140	WLGCA2-140
			Indicator	NC wiring	—	—	WLGCA2-140LD2
				NO wiring	—	—	WLGCA2-140LD3
		-141	No indicator		—	—	WLGCA2-141
			Indicator	NC wiring	—	—	—
				NO wiring	—	—	WLGCA2-141LD3
	Anti-coolant		No indicator		WLCA2-2RP60	—	WLGCA2-RP60
			Indicator	NC wiring	WLCA2-2RP60LD2	—	WLGCA2-RP60LD2
				NO wiring	WLCA2-2RP60LD3	—	WLGCA2-RP60LD3
Heat-resistant			No indicator		WLCA2-2TH	WLCA2-2NTH	WLGCA2-TH
Low-temperature					WLCA2-2TC	WLCA2-2NTC	WLGCA2-TC
Corrosion-proof					—	—	WLGCA2-RP

Item	Actuator			Adjustable roller lever		
				Basic	Overtravel	
					General-purpose	High-sensitivity
				Model	Model	Model
Airtight seal			No indicator	WLCA12-55	—	—
			Indicator: LED	WLCA12-55LD	—	—
			Indicator: Neon	WLCA12-55LE	—	—
Hermetic seal	Molded terminals	-139	No indicator	WLCA12-139	—	—
		-140		WLCA12-140	—	—
		-141		WLCA12-141	—	—
	Anti-coolant			WLCA12-RP60	—	—
Heat-resistant			No indicator	WLCA12-TH	WLH12-TH	WLG12-TH
Low-temperature				WLCA12-TC	WLH12-TC	WLG12-TC
Corrosion-proof				WLCA12-RP	WLH12-RP	WLG12-RP
Weather-proof				WLCA12-P1	WLH12-P1	WLG12-P1

Item	Actuator		Adjustable roller lever	
			Overtravel	
			90° (-2 model)	90° (-2N model)
			Model	Model
Heat-resistant		No indicator	WLCA12-2TH	WLCA12-2NTH
Low-temperature			WLCA12-2TC	WLCA12-2NTC

Item	Actuator			Adjustable rod lever 25 to 140 mm		
				Basic	Overtravel	
					General-purpose	High-sensitivity
				Model	Model	Model
Airtight seal			No indicator	WLCL-55	—	—
			Indicator: LED	WLCL-55LD	—	—
			Indicator: Neon	—	—	—
Hermetic seal	Molded terminals	-139	No indicator	WLCL-139	—	—
		-140		WLCL-140	—	—
		-141		—	—	—
	Anti-coolant			WLCL-RP60	—	—
Heat-resistant			No indicator	WLCL-TH	WLHL-TH	WLGL-TH
Low-temperature				WLCL-TC	WLHL-TC	WLGL-TC
Corrosion-proof				WLCL-RP	WLHL-RP	WLGL-RP
Weather-proof				WLCL-P1	WLHL-P1	WLGL-P1

Item	Actuator		Adjustable rod lever 25 to 140 mm	
			Overtravel	
			90° (-2 model)	90° (-2N model)
			Model	Model
Heat-resistant		No indicator	WLCL-2TH	WLCL-2NTH
Low-temperature			WLCL-2TC	WLCL-2NTC
Corrosion-proof			WLCL-2RP	—

Item			Actuator		Top-roller plunger 	Sealed top-roller plunger 	Horizontal plunger 
					Model	Model	Model
Airtight seal			No indicator		WLD2-55	WLD28-55	WLSD-55
			Indicator	LED	WLD2-55LD	WLD28-55LD	WLSD-55LD
				Neon	WLD2-55LE	WLD28-55LE	—
Hermetic seal	Molded terminals	-139	No indicator		WLD2-139	WLD28-139	WLSD-139
		-140			—	WLD28-140	—
	Anti-coolant				WLD2-RP60	WLD28-RP60	WLSD-RP60
Heat-resistant			No indicator		WLD2-TH	WLD28-TH	WLSD-TH
Low-temperature					WLD2-TC	—	WLSD-TC
Corrosion-proof					WLD2-RP	WLD28-RP	WLSD-RP

Note: The standard cable length for models with airtight seals is 5 m.

Item			Actuator		Horizontal-roller plunger 	Coil spring (spring diameter: 6.5) 	Coil spring (resin rod diameter: 8) 
					Model	Model	Model
Airtight seal			No indicator		WLSD2-55	WLNJ-55	WLNJ-255
			Indicator	LED	WLSD2-55LD	WLNJ-55LD	WLNJ-255LD
				Neon	—	—	—
Hermetic seal	Molded terminals	-139	No indicator		WLSD2-139	WLNJ-139	—
		-140			WLSD2-140	WLNJ-140	WLNJ-2140
	Anti-coolant				WLSD2-RP60	WLNJ-RP60	WLNJ-2RP60
Heat-resistant			No indicator		WLSD2-TH	WLNJ-TH	—
Low-temperature					WLSD2-TC	WLNJ-TC	WLNJ-2TC
Corrosion-proof					WLSD2-RP	WLNJ-RP	WLNJ-2RP

Note: The standard cable length for models with airtight seals is 5 m.

Spatter-prevention Switches

Item			Actuator: Roller lever — Double nut lever	Actuator: Roller lever — Allen-head lever	Actuator: 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.

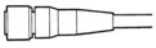
Long-life Switches

Actuator			Item: LED operation indicator *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-conductor	AC	WLMCA2-LDK13A	WLMH2-LDK13A	WLMG2-LDK13A	WLMGCA2-LDK13A
		DC	WLMCA2-LDK13	WLMH2-LDK13	WLMG2-LDK13	WLMGCA2-LDK13
	4-conductor	AC	WLMCA2-LDK43A	WLMH2-LDK43A	WLMG2-LDK43A	WLMGCA2-LDK43A
		DC	WLMCA2-LDK43	WLMH2-LDK43	WLMG2-LDK43	WLMGCA2-LDK43
Roller lever, pre-wired connector *2	2-conductor	DC	WLMCA2-LD-M1J	WLMH2-LD-M1J	WLMG2-LD-M1J	WLMGCA2-LD-M1J
	4-conductor	DC	WLMCA2-LD-DGJ03	WLMH2-LD-DGJ03	WLMG2-LD-DGJ03	—

*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-conductor models.)
*2. With 0.3-m cable attached.

Connecting Cables

Straight Cable



Voltage specification	Number of conductors	Cable length	Model
AC	2	2 m	XS2F-A421-DB0-A
		5 m	XS2F-A421-GB0-A
	4	2 m	XS2F-A421-D90-A
		5 m	XS2F-A421-G90-A
DC	2	2 m	XS2F-D421-DD0-A
		5 m	XS2F-D421-GD0-A
	4	2 m	XS2F-D421-D80-A
		5 m	XS2F-D421-G80-A

Individual Parts

Heads

Actuator type	Set model	Head model (with Actuator)
Roller lever 	WLCA2	**WL-1H1100**
	WLG2	**WL-2H1100**
	WLH2	**WL-2H1100-1** *
	WLCA2-2	**WL-3H1100**
	WLCA2-2N	**WL-6H1100**
Adjustable roller lever 	WLCA12	**WL-1H2100**
	WLG12	**WL-2H2100**
	WLH12	**WL-2H2100-1** *
	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**

* 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

Actuator type		Switches without levers 
		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 	Maintained, WL-5A100 Maintained, WL-5A102 Maintained, WL-5A104	**WLRCA32**
Switches for coil springs 	—	—

Covers with Operation Indicators

Cover Item	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."

Spatter-prevention Products

Head (with actuator)		Lever		Cover with indicator	Switches without Levers
Complete Heads with allen-head levers	Double Nut Lever	Allen-head Lever	Double Nut Lever	Cover with Indicator	Switches without levers
Model	Model	Model	Model	Model	Model
WL-1H1100S (for WLCA2-□ or WLGCA2-□)	**WL-2H1100S** (for WLH2-□ or WLG2-□)	**WL-1A103S** Roller lever	**WL-1A105S** Roller Lever	Neon lamp **WL-LES** LED (LED) **WL-LDS**	**WLRCA2-LDS** **WLRH2-LES** **WLRH2-LDS** **WLRG2-LDS** **WLRGCA2-LES**

WL Head Replacement

Heads can be replaced within the same model group. They cannot be replaced between different model groups.

Group No.	Set model number	Head model number (with Actuator)
1	WLCA2	**WL-1H1100**
	WLCA2-7	**WL-1H1200**
	WLCA2-8	**WL-1H1300**
	WLCA12	**WL-1H2100**
2	WLCL	**WL-4H4100** *
3	WLH2	**WL-2H1100-1**
	WLH12	**WL-2H2100-1**
	WLHL	**WL-2H4100**
	WLHAL4	**WL-2H4106**
	WLHAL5	**WL-2H4107**
4	WLCA2-2N	**WL-6H1100**
	WLCA12-2N	**WL-6H2100**
	WLCL-2N	**WL-6H4100**
5	WLCA2-2	**WL-3H1100**
	WLCA12-2	**WL-3H2100**
	WLCL-2	**WL-3H4100**
6	WLG2	**WL-2H1100**
	WLG12	**WL-2H2100**
	WLGL	**WL-2H4100**
7	WLCA32-41	**WL-5H5100**
	WLCA32-42	**WL-5H5102**
	WLCA32-43	**WL-5H5104**
	WLCA32-44	**WL-5H5104**
8	WLD	**WL-7H100**
	WLD2	**WL-7H200**
	WLD3	**WL-7H300**
9	WLD28	**WL-7H400** *
10	WLSD	**WL-8H100**
	WLSD2	**WL-8H200**
	WLSD3	**WL-8H300**
11	WLNJ	**WL-9H100**
	WLNJ-30	**WL-9H200**
12	WLNJ-2	**WL-9H300** *
13	WLNJ-S2	**WL-9H400** *

* This Heads are special and must be used. Do not use any other Head.

Specifications

Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	E76675	Contact your OMRON representative for information on approved models.
CSA	CSA C22.2 No.14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353, J9950023, J9950959	
CCC (CQC)	GB14048.5	2004010305128675	

General-purpose/Weather-proof Switches

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	125 VAC	10		3	1.5	10		5	2.5
	250 VAC	10		2	1	10		3	1.5
	500 VAC	10		1.5	0.8	3		1.5	0.8
	8 VDC	10		6	3	10		6	
	14 VDC	10		6	3	10		6	
	30 VDC	6		4	3	6		4	
	125 VDC	0.8		0.2	0.2	0.8		0.2	
	250 VDC	0.4		0.1	0.1	0.4		0.1	
High-sensitivity overtravel models	125 VAC	5		—		—		—	
	250 VAC	5							
	125 VDC	0.4		—		—		—	
	250 VDC	0.2							

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

* 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.

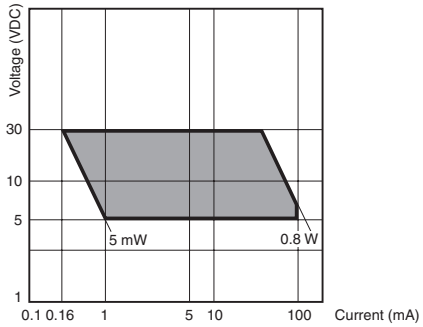
Minimum applicable load	5 VDC 160 mA

Microload Switches (Refer to these ratings before using the product.)

Rated voltage (V)	Rated current (A) - Resistive load
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



Recommended load range	5 VDC 1 mA

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

Microload Switches

0.1 A 125 VAC, 0.1 A 30 VDC

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

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)	2A
Rated operating voltage (Ue)	250V

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	115 AC/DC	Approx. 0.5
		10 to 24 AC/DC	Approx. 0.4

Characteristics

Degree of protection		IP67
Durability *1	Mechanical	15,000,000 operations min. *2
	Electrical	750,000 operations min. *3
Operating speed		1 mm/s to 1 m/s (in case of 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 for the built-in switch when tested alone) *6
Dielectric strength	Between terminals of the same polarity	1,000 VAC (600 VAC), 50/60 Hz for 1 min
	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	2,200 VAC (1,500 VAC), 50/60 Hz for 1 min/Uimp 2.5 kV
Rated insulation voltage (Ui)		250 V (EN60947-5-1)
Pollution degree (operating environment)		3 (EN60947-5-1)
Short-circuit protective device (SCPD)		10 A, fuse type gG or gI (IEC60269)
Conditional short-circuit current		100 A (EN60947-5-1)
Conventional enclosed thermal current (Ithe)		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 *4
Shock resistance	Destruction	1,000 m/s² min.
	Malfunction	300 m/s² min. *4
Ambient operating temperature		–10°C to +80°C (with no icing) *5
Ambient operating humidity		35% to 95% RH
Weight		Approx. 275 g (in 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.

*1. The values are calculated at an operating temperature of +5°C to +35°C and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.
*2. Durability is 10,000,000 operations min. for general-purpose or high-sensitivity overtravel models, and for flexible rod models.
500,000 operations min. for weather-proof models.
*3. Durability is 500,000 operations min. for high-sensitivity models. All microload models are 1,000,000 operations min.
500,000 operations min. for weather-proof models.
*4. Except flexible rod models. The shock resistance (malfunction) for microload models is 200 m/s² min.
*5. For low-temperature models this is –40°C to +40°C (with no icing). For heat-resistant models the range is +5°C to +120°C.
*6. For microload models, the contact resistance is 50 mΩ max. (initial value for built-in switch).

Spatter-prevention Switches

Ratings

Screw terminals

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	125 VAC	10		3	1.5	10		5	2.5
	250 VAC	10		2	1	10		3	1.5
WL□-LDS	115 VAC	10		3	1.5	10		5	2.5
	12 VDC	10		6	3	10		6	
	24 VDC	6		4	3	6		4	
	48 VDC	3		2	1.5	3		2	

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.

Inrush current	NC	30 A max.
	NO	20 A max.
Operating temperature		–10°C to +80°C (with no icing)
Operating humidity		35% to 95%RH max.

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

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

Characteristics

Degree of protection		IP67
Durability *1	Mechanical	15,000,000 operations min. *2
	Electrical	750,000 operations min. *3
Operating speed		1 mm/s to 1 m/s (in case of 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 for the built-in switch when tested alone)
Dielectric strength	Between terminals of the same polarity	1,000 VAC (600 VAC), 50/60 Hz for 1 min
	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	2,200 VAC (1,500 VAC), 50/60 Hz for 1 min/Uimp 2.5 kV
Rated insulation voltage (Ui)		250 V (EN60947-5-1)
Pollution degree (operating environment)		3 (EN60947-5-1)
Short-circuit protective device (SCPD)		10 A, fuse type gG or gI (IEC60269)
Conditional short-circuit current		100 A (EN60947-5-1)
Conventional enclosed thermal current (Ithe)		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/s² min.
	Malfunction	300 m/s² min.
Ambient operating temperature		–10°C to +80°C (with no icing)
Ambient operating humidity		35% to 95%RH
Weight		Approx. 275 g (in 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.

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

*2. Durability is 10,000,000 operations min. for general-purpose or high-sensitivity overtravel models.

*3. Durability is 500,000 operations min. for high-precision models. All microload models however, are 1,000,000 operations min.

Long-life Switches

Ratings

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	10		6	3	10		6	
	24 DC	6		4	3	6		4	
	48 DC	3		2	1.5	3		2	
	115 DC	0.8		0.2	0.2	0.8		0.2	
High-sensitivity overtravel models	115 AC	5		—		—		—	
	115 DC	0.4		—		—		—	

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

* 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 *	Mechanical	30,000,000 operations min.
	Electrical	30,000,000 operations min. (10 mA at 24 VDC, resistive load) 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/s to 1 m/s (in case of 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 for the built-in switch when tested alone)
Dielectric strength (50/60 Hz for 1 min)	Between terminals of the same polarity	1,000 VAC (except connector models)
	Between current-carrying metal part and ground	2,200 VAC (1,500 V)
	Between each terminal and non-current-carrying metal part	2,200 VAC (1,500 V)
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction	1,000 m/s² min.
	Malfunction	300 m/s² min.
Ambient operating temperature		–10°C to +80°C (with no icing)
Ambient operating humidity		35% to 95%RH
Weight		Approx. 275 g (in case of WLCA2)

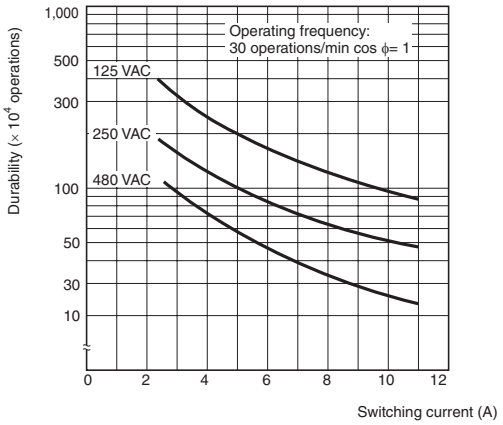
Note: The figures in parentheses for dielectric strength, are those for overtravel (high-sensitivity) or connector models.

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

Engineering Data

Electrical Durability: cosϕ= 1

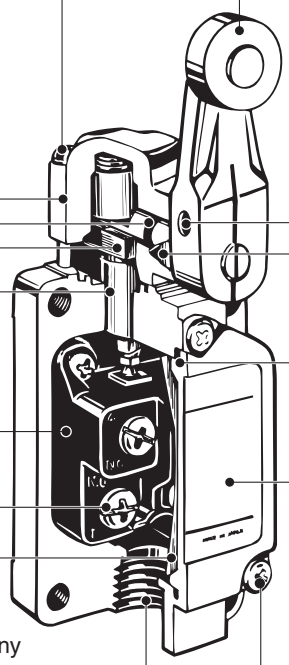
(Operating temperature: +5°C to +35°C, operating humidity: 40% to 70%RH)



Structure and Nomenclature

Structure

General-purpose Switches: WLCA2



Head-mounting Screws

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.

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.

Operational Plunger *2

Bearing
The bearing smooths the plunger movement.

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

Terminal Screws
Four, M4 screws

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

Conduit Opening *1
The conduit threads are parallel threads for G½ tube and offer further increased sealing properties when used in conjunction with the SC connector.

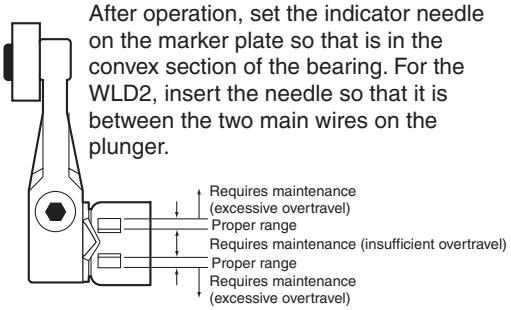
Actuator

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.)

Roller Lever Setscrew

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.



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.

Cover

Cover Setscrew
Phillips screws are used to ensure ease of use.

*1. The display for conduit threads has changed from PF½ to G½, 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 ½-14NPT are also available.)
*2. By changing the orientation of the operational plunger, any one of the three operational directions (both sides, left, or right) can be selected electrically.

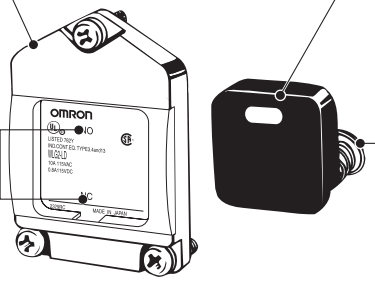
Indicators

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

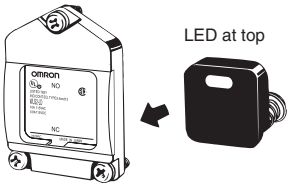
Indicators can be switched from light-ON when operating and light-ON when not operating, by simply rotating the indicator holder by 180°.
(Molded terminals cannot be switched in this way.)



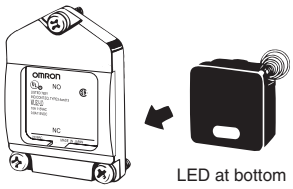
Indicator
The indicator is either a neon lamp or an LED. Models with LED indicators have a built-in rectifier stack, so it is not necessary to change the polarity.

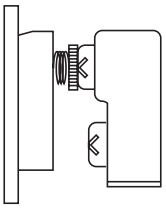
Contact Spring
The built-in switch's terminal screws are used to connect the indicator terminal. Since the connection spring (coil spring) is used for this connection, it will not be necessary to connect the indicator terminal. When a ground terminal is provided however, a lead wire must be used.

Light-ON when Operating

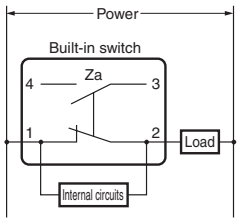
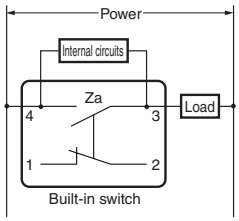


Light-ON when Not Operating

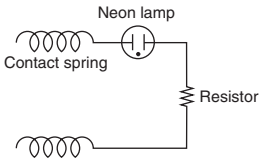
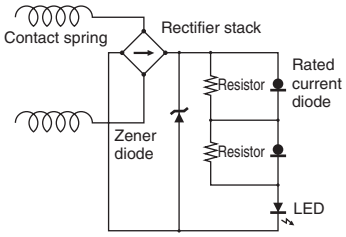




Operation

WL-LE WL-LD	Light-ON when operating *1	
	Light-ON when not operating *2	

Internal Circuits

WL-LE	
WL-LD	

Note: 1. The indicator cover cannot be replaced on the molded terminals. In all cases the indicator does not light when the load is ON.
2. Leakage current from indicator circuit may cause load's malfunction. Please check the load's OFF current before use the indicator-equipped switch.

*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.

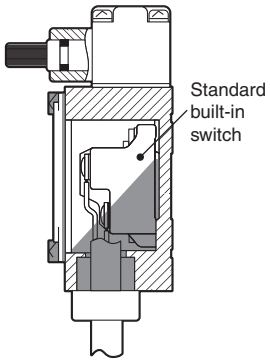
*2. Light-ON when not operating means the lamp remains lit when the actuator is free, or when the Limit Switch contacts (NO) close when the actuator rotates or is pushed down.

Environment-resistant Switches

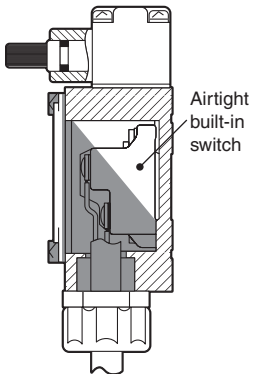
Mold Specifications for Hermetic Seal Switches

: Molded parts

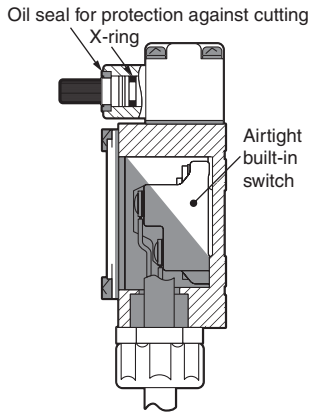
WL□-139



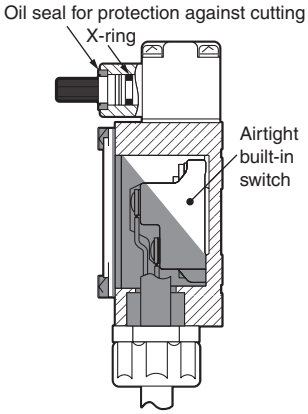
WL□-140



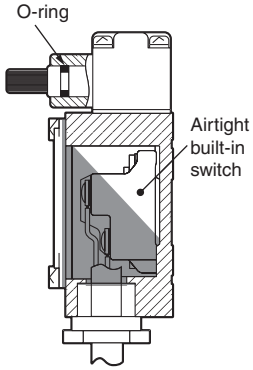
WL□-141



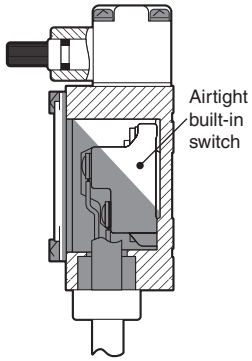
WL□-145



WL□-RP40



WL□-RP60



* 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-conductor.
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-conductor.

Spatter-prevention Switches: WLCA2-LEAS

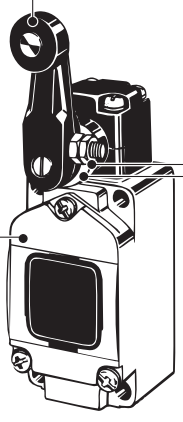
Actuator

Roller, Roller Axis
Using stainless steel prevents spatter from adhering.

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

Double Nut
SUS is used for double nut.

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.



Screws
SUS is used, preventing spatter from adhering.

Head Cap
Using fluororesin prevents spatter from adhering.
* Spatter means the zinc powder produced when welding. Adhering spatter to the Limit Switch may cause malfunction of lever or lamp cover.

The lack of gap prevents spatter powder from clogging.