WL/WLM

CSM_WL_WLM_DS_E_17_3

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.



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

The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. Refer to the model replacement table on page 42 and order high-sensitivity and high-precision models with the WL model numbers.



Be sure to read *Safety Precautions* on page 43 to 46 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, Heatresistant 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

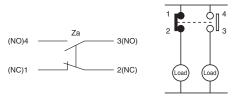
Mechanical Endurance of 30 Million Operations Long-life Models for High-frequency Applications

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 Indicatorequipped switches, Spatter-prevention Basic Switches, and Long-life Basic Switches.



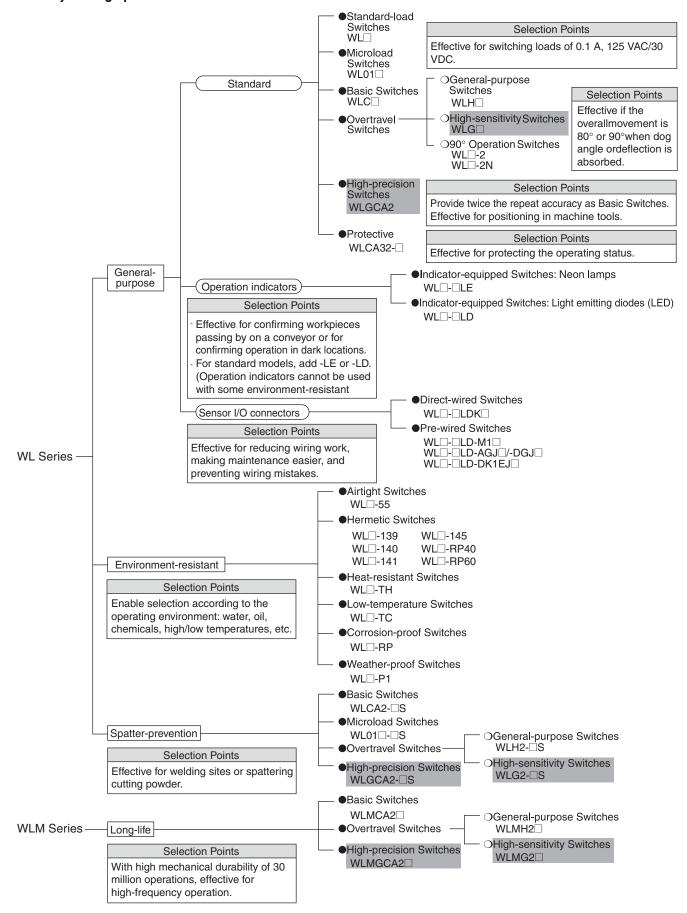
Models with Connectors to Reduce Wiring

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

The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N high-sensitivity, high-precision models, refer to the model replacement table on page 42 and order high-sensitivity and high-precision models with the WL model numbers.



Tables of Models

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

Heads (Roller levers only)

Type	General purpose	Features	Head spe	cifications	Spatter prevention	Long-life
Туре	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	Any of 4 directions	WLH2-□S	WLH2□
High-sensitivity Overtravel *3	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,	WL□-2	Overtravel is large, making setting the dog easier.	Not possible *2	Any of 4 directions	_	_
90° operation	WL□-2N	Mounting is compatible with WLCA2-2.	Possible *1	Either of 2 directions		
High-precision *3	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 *3	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
wiring type	Model	Connector/conduit specifications	Model	Model
Direct-wired connector	WL□-□LDK□	SC-2F/-4F Connector built-in	_	WLM□-LDK□
Pre-wired connector	WLLD-M1_ WLLDGJ_ WLLD-DK1EJ_	XS2H-series Pre-wired Connector built- in	WL□-□S-M1□J-1 WL□-□S-DGJS03	WLMLD-M1J WLMLDGJ
Conduit (screw terminal)	WL WL G1 WL G WL Y WL TS WL	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 — — — —

^{*3.} The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N high-sensitivity, high-precision models, refer to the model replacement table on page 42 and order high-sensitivity and high-precision models with the WL model numbers.

Environment-resistant Switches

	Item Environment-resistant			
Туре	Model	Application	Environment-resistant construction	Applicable models
Airtight seal	WL□-55		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-re- sistant models Note: Models can be produced using standard actuators.
	WL□-139	For uses in locations sub-		All models except the low-
	WL□-140	ject to cutting oil or water		temperature and heat-re- sistant models
Hermetic seal	WL□-141		Refer to page 25 for information on the environ-	Note: Models can be produced using standard
(Molded terminals/ Anti-coolant)	WL□-145		ment-resistant construction of Switches with Hermetic Seals.	actuators. Only the
	WL□-RP40			WLCA2, WLGCA2, or WLH2 can be produced
	WL□-RP60			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, ny- lon roller (WLCA2-26N), seal roller models, and res- in 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, heatresistant, and indicatorequipped 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 over-travel (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 (SiO₂). 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
Normal	-10°C +80°C	WL□	General-purpose Switches Long-life Switches
High-temperature	Water-resistant to IP67. +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
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
	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	
Constant water drops and mist	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, N Switches *1	Nolded-terminal , *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 powder141: The Head section is molded from epoxy resin; Head direction cannot be changed145: 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, WLGCA 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.	Hermetic, Molded-terminal	
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.

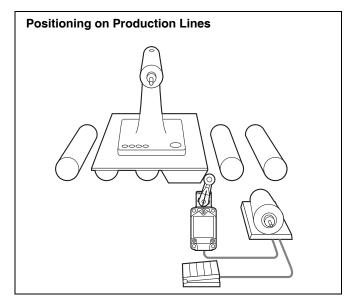
According to Application Conditions Conditions Key specifications Models WL 10 A at 125,250, or 500 VAC General-purpose Switches Switching standard 0.8 A at 125 VDC WL□-S Spatter-prevention Switches 0.4 A at 250 VDC $\mathsf{WLM}\square$ Long-life Switches Load Switching 0.1 A at 125 VAC, resistive load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

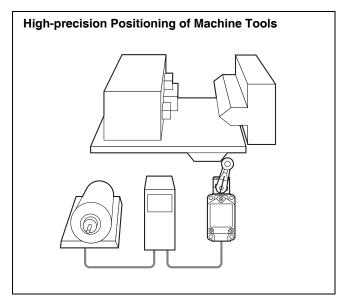
	Conditions	Key specifications	Models
Operation indicator	Daily inspections	Switching light-ON between operating/not operating. (Switching not possible for models with molded terminals.) Neon lamp 125 to 250 VAC	WL□-LE General-purpose, Indicator-equipped (Neon Lamp) Switches WL□-LES Spatter-prevention, Indicator-equipped (Neon Lamp) Switches
	Operation	and maintenance - checks	Switching light-ON between operating/not operating. (Switching not possible for models with molded terminals.) LED 10 to 115 VAC/DC
Wiring specification	Screw tightening	Screw terminals. No ground terminal. Conduit size: G1/2	WL□ General-purpose Switches WLM□ Long-life Switches
	and installation	Screw terminals. Ground terminal. Conduit size: 4 sizes	WL□ General-purpose Switches
	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
		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
	Connector attachment in	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
	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

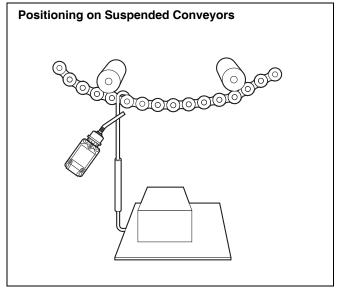
According to Form of Operation

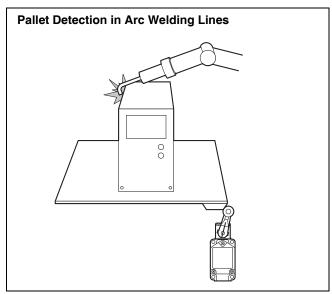
	Detection object	Key specifications		Models		
	General	TT (total travel) PT (pretravel)	,	WLCA2 WLCA2-□S WLMCA2	General-purpose Switches Spatter-prevention Switches Long-life Switches	
səlbu	Passing dogs	800	,	WLH2 WLH2-□S WLMH2	General-purpose Switches Spatter-prevention Switches Long-life Switches	
Operation angles	Passing dogs, high sensitivity	80° 110°	,	WLG2 WLG2-□S WLMG2	General-purpose Switches Spatter-prevention Switches Long-life Switches	
Ö	Passing dogs	90° WLCA2-2 25° WLCA2-2N		WLCA2-2 WLCA2-2N	General-purpose Switches General-purpose Switches	
	High precision	45 45 5 5 6	,	WLGCA2 WLGCA2-□S WLMGCA2	General-purpose Switches Spatter-prevention Switches Long-life Switches	
		Short lever One-Horizontal operation (WLCA□ only) Head mounts in any of 4	i possible.	WL□2 WL□2-□S WLM□2	Roller Lever Actuators Roller Lever Actuators Roller Lever Actuators	
ı	Dogs and workpieces (Mounts in any of 4 directions)	Medium lever One-Horizontal operation (WLCA□ only) Head mounts in any of 4		WL□2-7	Roller Lever Actuators	
ı	4 directions)	Long lever One-Horizontal operation (WLCA□ only) Head mounts in any of 4		WL□2-8	Roller Lever Actuators	
	Adjustable between dog and lever	One-Horizontal operation (WLCA□ only) Head mounts in any of 4		WL□12	Adjustable Roller Lever Actuators	
ı	Dogs or workpieces with large deflection	One-Horizontal operation (WLCL only) Head mounts in any of 4	,	WL□L	Adjustable Rod Lever Actuators	
ı		One-Horizontal operation possible. Head mounts in any of 4	,	WLHAL4	Adjustable Rod Lever Actuator	
ators		One-Horizontal operation possible. Head mounts in any of 4	,	WLHAL5	Rod Spring Lever Actuator	
Actua		● Head mounts in any of 4	directions.	WLCA32-41	Fork Lever Lock Actuator	
ш	Round-trip operation of	Head mounts in any of 4	directions.	WLCA32-42	Fork Lever Lock Actuator	
ш	passing dogs	Head mounts in any of 4	directions.	WLCA32-43	Fork Lever Lock Actuator	
ı		• Head mounts in any of 4	directions.	WLCA32-44	Fork Lever Lock Actuator	
		A	,	WLD	Top Plunger Actuator	
		• Head mounts in any of 4	directions.	WLSD	Horizontal Plunger Actuator	
	Cams or workpieces with	A	,	WLD3	Top-ball Plunger Actuator	
	vertical movement	● Head mounts in any of 4	directions.	WLSD3	Horizontal-ball Plunger Actuator	
		● Available in sealed mode (WLD28□)		WLD2 WLD28	Top-roller Plunger Actuator Sealed Top-roller Plunger Actuator	
		er.	,	WLSD2	Horizontal-roller Plunger Actuator	

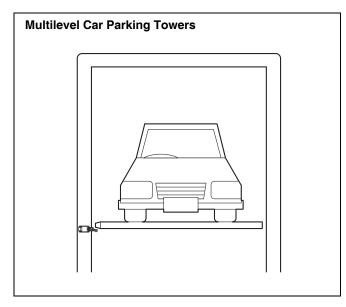
Application Examples

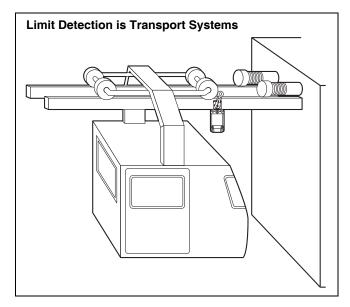












Model Number Structure

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

General-purpose and Environment-resistant Switches

(1) Electrical Rating

Blank	Standard load
01	Microload
	mensions are the same as the standard

(3) Environment-resistant Model Specifications

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

Note: Dimensions are the same as the standard models.

(4) Built-in Switch Type

Blank	Standard		
55	Hermetically sealed *1		

Note: Dimensions are the same as the standard models.

(5) Temperature Specifications

	Standard: -10°C to +80°C
	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

(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
	M20 with ground terminal
TS	1/2-14NPT with ground terminal

Note: Dimensions are the same as the standard models.

(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.

(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	_

(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
LD	LLD	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
Α	Double nut lever

^{*1.} Refer to page 4 for applicable models.

^{*1.} Refer to page 4 for applicable models.

^{*1.} Refer to page 4 for applicable models.

^{*2.} Models with ground terminals are approved by EN/IEC (CE marking).

General-purpose Switches

Sensor I/O Connector Switches

WL -- LD $\overline{(1)}\overline{(2)}\overline{(3)}\overline{(4)}\overline{(5)}$

(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 over- travel model
D2	Top-roller plunger
D28	Sealed top-roller plunger

(3) Built-in Switch Type

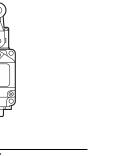
Blank Standard		Standard
Ī	55	Hermetically sealed

Note: Dimensions are the same as the standard models.

Direct-wired Connector



Pre-wired Connector



(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).

Spatter-prevention Switches

WL]-[S	
	(1) (2	(3)	(4)		(5)

(1) Electrical Rating

Blank	Standard load	
01	Microload	
N. B		

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	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	K43A Direct-wired Connector: 4-conductor, AC			
K43	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.

^{*2.} With 0.3-m cable attached.

Ordering Information

General-purpose Switches

Standard Switches

Note: Models are also available with ground terminals.

Lever

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

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

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)	Fork lever lock (with WL-5A104 plastic roller lever)
Item		Model	Model	Model	Model
Maintained	Standard load	WLCA32-41	WLCA32-42	WLCA32-43	WLCA32-44
wamtameu	Microload	WL01CA32-41	_	WL01CA32-43	WL01CA32-44

Plunger

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

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

Flexible Rod

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

General-purpose Switches

(Indicator-equipped Switches)

Lever

		Actuator	Roller lever R38	Roller lever R50	Roller lever R63	Adjustable roller lever
Item			Model	Model	Model	Model
Basic		Neon lamp	WLCA2-LE	WLCA2-7LE	WLCA2-8LE	WLCA12-LE
Dasic		LED	WLCA2-LD	WLCA2-7LD	WLCA2-8LD	WLCA12-LD
	General-	Neon lamp	WLH2-LE	_	_	WLH12-LE
	purpose	LED	WLH2-LD	_	_	WLH12-LD
	High-	Neon lamp	WLG2-LE	_	_	WLG12-LE
Overtravel	sensitivity	LED	WLG2-LD	_	_	WLG12-LD
Overtiavei		Neon lamp	WLCA2-2LE	_	_	WLCA12-2LE
	90°	LED	WLCA2-2LD	_	_	WLCA12-2LD
	operation	Neon lamp	WLCA2-2NLE	_	_	WLCA12-2NLE
		LED	WLCA2-2NLD	_	_	WLCA12-2NLD
High-prec	icion	Neon lamp	WLGCA2-LE	_	_	_
riigii-prec	151011	LED	WLGCA2-LD	_	_	_

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

	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)
Item		Model	Model	Model
Maintained	Neon lamp	WLCA32-41LE	WLCA32-42LE	WLCA32-43LE
waintameu	LED	WLCA32-41LD	_	WLCA32-43LD
		<u> </u>		

Plunger

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

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

Flexible Rod

	Actuator	Coil spring (spring diameter: 6.5)	Coil spring (spring diameter: 4.8)	Coil spring (resin rod diameter: 8)	Steel wire (wire diameter: 1)
Item		Model	Model	Model	Model
Flexible rod	Neon lamp	WLNJ-LE	WLNJ-30LE	WLNJ-2LE	WLNJ-S2LE
FIEXIDIE 100	LED	WLNJ-LD	WLNJ-30LD	WLNJ-2LD	WLNJ-S2LD

General-purpose Switches

(Sensor I/O Connector Switches)

Direct-wired Connectors

					Item	Basic	Over	travel	High-precision			
						Dasic	General-purpose	High-sensitivity	riigii-precision			
Actuator		V	Virin	9	Built-in switch specification	Model	Model	Model	Model			
Roller lever	2-con-	DC	NO	connector	Standard	WLCA2-LDK13	WLH2-LDK13	WLG2-LDK13	WLGCA2-LDK13			
	ductor	ductor	ductor DC T	tor			No. 3, 4	Airtight seal	WLCA2-55LDK13	WLH2-55LDK13	WLG2-55LDK13	WLGCA2-55LDK13
	4-con-	1)(:			Standard	WLCA2-LDK43	WLH2-LDK43	WLG2-LDK43	WLGCA2-LDK43			
[—]	ductor					Airtight seal	WLCA2-55LDK43	WLH2-55LDK43	WLG2-55LDK43	WLGCA2-55LDK43		
Top-roller	unger ductor	DC	C NO	connector	Standard	WLD2-LDK13	_	_	_			
plunger		uctor		or DC N		ductor		No. 3, 4	Airtight seal	WLD2-55LDK13	_	_
4-cc	4-con-	1)(:		n- pc			Standard	WLD2-LDK43	_	_	_	
	ductor				Airtight seal	WLD2-55LDK43	_	_	_			

Pre-wired Connectors

					Item	Basic	Over	travel	High-precision				
						Dasic	General-purpose	High-sensitivity	nigh-precision				
Actuator		٧	Viring	g	Built-in switch specification	Model	Model	Model	Model				
				connector	Standard	WLCA2-LD-M1J	WLH2-LD-M1J	WLG2-LD-M1J	WLGCA2-LD-M1J				
			NO	pins No. 3, 4	Airtight seal	WLCA2-55LD-M1J	_	_	WLGCA2-55LD-M1				
	2-con-	DC	NO	connector	Standard	WLCA2-LD-M1GJ	WLH2-LD-M1GJ	WLG2-LD-M1GJ	WLGCA2-LD-M1G				
Roller lever	ductor	ьс		No. 1, 4	Airtight seal	WLCA2-55LD-M1GJ	_	WLG2-55LD-M1GJ	_				
			NC	connector	Standard	_	_	WLG2-LD-M1JB	_				
			NC	No. 3, 2	Airtight seal	WLCA2-55LD-M1JB	_	WLG2-55LD-M1JB	WLGCA2-55LD-M1JE				
	4-con-	DC			Standard	WLCA2-LD-DGJ03	WLH2-LD-DGJ03	WLG2-LD-DGJ03	_				
	ductor	ьс			Airtight seal	WLCA2-55LD-DGJ03	_	WLG2-55LD-DGJ03	WLGCA2-55LD-DGJ0				
	3-con-	DC		connector	Standard	WLCA2-LD-DK1EJ03	_	WLG2-LD-DK1EJ03	_				
	ductor	БС		No. 2, 3, 4	Airtight seal	WLCA2-55LD-DK1EJ03	_	WLG2-55LD-DK1EJ03	_				
				connector	Standard	WLD2-LD-M1J	_	_	_				
				NC	NO		NC	No. 3, 4	Airtight seal	WLD2-55LD-M1J	_	_	_
	2-con-	DC	NO	connector	Standard	WLD2-LD-M1GJ	_	_	_				
op-roller	ductor	БС		No. 1, 4	Airtight seal	WLD2-55LD-M1GJ	_	_	_				
lunger			NC	connector pins	Standard	<u> </u>	_	_	_				
				No. 3, 2	Airtight seal	WLD2-55LD-M1JB	_	_	_				
	4-con-	-con- DC			Standard	WLD2-LD-DGJ03	_	_	_				
	ductor	БС			Airtight seal	_	_	_	_				
	3-con-	on- DC		connector	Standard	WLD2-LD-DK1EJ03	_	_	_				
	ductor	ЪС		pins No. 2, 3, 4	Airtight seal	WLD2-55LD-DK1EJ03	_	_	_				

Environment-resistant Switches

Note: Models are also available with ground terminals.

				Actuator		Roller lever R38	
					Basic	Ove	ertravel
					Dasic	General-purpose	High-sensitivity
Item					Model	Model	Model
			No indicat	or	WLCA2-55	WLH2-55	WLG2-55
Airtight seal Indicator LED Neon			LED	WLCA2-55LD	WLH2-55LD	WLG2-55LD	
			iliuicatoi	Neon	WLCA2-55LE	WLH2-55LE	WLG2-55LE
			No indicat	or	WLCA2-139	WLH2-139	WLG2-139
	-139	Indicator	NC wiring	WLCA2-139LD2	_	_	
			illuicator	NO wiring	WLCA2-139LD3	_	WLG2-139LD3
	Maldad		No indicator		WLCA2-140	WLH2-140	WLG2-140
	Molded terminals	-140	Indicator	NC wiring	WLCA2-140LD2	_	WLG2-140LD2
Hermetic	terrimiais		indicator	NO wiring	WLCA2-140LD3	_	WLG2-140LD3
seal			No indicat	or	WLCA2-141	WLH2-141	WLG2-141
		-141	Indicator	NC wiring	WLCA2-141LD2	_	WLG2-141LD2
			illulcator	NO wiring	WLCA2-141LD3	WLH2-141LD3	WLG2-141LD3
			No indicat	or	WLCA2-RP60	WLH2-RP60	WLG2-RP60
	Anti-coola	nt	Indicator	NC wiring	WLCA2-RP60LD2	_	WLG2-RP60LD2
			illulcator	NO wiring	WLCA2-RP60LD3	WLH2-RP60LD3	WLG2-RP60LD3
Heat-resist	tant				WLCA2-TH	WLH2-TH	WLG2-TH
Low-tempe	erature		No indicat	or	WLCA2-TC	WLH2-TC	WLG2-TC
Corrosion-	proof		INO IIIUICAI	UI	WLCA2-RP	WLH2-RP	WLG2-RP
Weather-proof				WLCA2-P1	WLH2-P1	WLG2-P1	

				Actuator	Roller lever R38			
					Over	travel	High-precision	
					90° (-2 model)	90° (-2N model)	Tilgii-precision	
Item					Model	Model	Model	
			No indicat	or	WLCA2-255	WLCA2-2N55	WLGCA2-55	
Airtight se	al		Indicator	LED	WLCA2-255LD	WLCA2-2N55LD	WLGCA2-55LD	
			indicator	Neon	WLCA2-255LE	WLCA2-2N55LE	WLGCA2-55LE	
		No indicat	or	WLCA2-2139	WLCA2-2N139	WLGCA2-139		
		-139	-139	NC wiring	WLCA2-2139LD2	_	WLGCA2-139LD2	
			indicator	NO wiring	WLCA2-2139LD3	_	WLGCA2-139LD3	
		-140	No indicator		_	WLCA2-2N140	WLGCA2-140	
	Molded terminals		Indicator	NC wiring	_	_	WLGCA2-140LD2	
Hermetic	terrimas		indicator	NO wiring	=	_	WLGCA2-140LD3	
seal			No indicat	or	_	_	WLGCA2-141	
		-141	Indicator	NC wiring	_	_	_	
			indicator	NO wiring	_	_	WLGCA2-141LD3	
			No indicat	or	WLCA2-2RP60	_	WLGCA2-RP60	
	Anti-coola	nt	Indicator	NC wiring	WLCA2-2RP60LD2	_	WLGCA2-RP60LD2	
			Indicator	NO wiring	WLCA2-2RP60LD3	_	WLGCA2-RP60LD3	
Heat-resis	tant				WLCA2-2TH	WLCA2-2NTH	WLGCA2-TH	
Low-tempe	erature		No indicat	or	WLCA2-2TC	WLCA2-2NTC	WLGCA2-TC	
Corrosion-	-proof				_	_	WLGCA2-RP	

				Actuator	Adjustable roller lever			
					Dania	Over	travel	
					Basic	General-purpose	High-sensitivity	
Item					Model	Model	Model	
No indicator				or	WLCA12-55	_	_	
Airtight se	rtight seal Indicator		WLCA12-55LD	_	_			
			illuicatoi	Neon	WLCA12-55LE	_	_	
	NA - 1 - 1 1	-139			WLCA12-139	_	_	
Hermetic	Molded terminals	. -140	~"	WLCA12-140	_	_		
seal	terminais	-141	No indicat	OI	WLCA12-141	_	_	
	Anti-coola	nt			WLCA12-RP60	_	_	
Heat-resist	ant				WLCA12-TH	WLH12-TH	WLG12-TH	
Low-temperature No indicator		or	WLCA12-TC	WLH12-TC	WLG12-TC			
Corrosion-proof		INO IIIUICALOI		WLCA12-RP	WLH12-RP	WLG12-RP		
Weather-proof					WLCA12-P1	WLH12-P1	WLG12-P1	

	Actuator	Adjustable ro	oller lever
		Over	travel
		90° (-2 model)	90° (-2N model)
Item		Model	Model
Heat-resistant	No indicator	WLCA12-2TH	WLCA12-2NTH
Low-temperature	NO IIIUICALOI	WLCA12-2TC	WLCA12-2NTC

Actuator					Adjustable rod lever 25 to 140 mm			
					Basic	Over	travel	
					Dasic	General-purpose	High-sensitivity	
Item					Model	Model	Model	
			No indicat	or	WLCL-55	_	_	
Airtight sea	al		Indicator	LED	WLCL-55LD	_	_	
			indicator	Neon	_	_	_	
		-139			WLCL-139	_	_	
Hermetic	Molded terminals	-140	No indicator		WLCL-140	_	_	
seal	terminais	-141	- INO IIIUICAI	OI	_	_	_	
	Anti-coola	nt			WLCL-RP60	_	_	
Heat-resistant			WLCL-TH	WLHL-TH	WLGL-TH			
Low-temperature		WLCL-TC	WLHL-TC	WLGL-TC				
Corrosion-proof No indicator		UI	WLCL-RP	WLHL-RP	WLGL-RP			
Weather-pi	oof				WLCL-P1	WLHL-P1	WLGL-P1	

	Actuator	Adjustable rod leve	r 25 to 140 mm
		Overi	travel
		90° (-2 model)	90° (-2N model)
Item		Model	Model
Heat-resistant		WLCL-2TH	WLCL-2NTH
Low-temperature	No indicator	WLCL-2TC	WLCL-2NTC
Corrosion-proof		WLCL-2RP	_

Actuator				Actuator	Top-roller plunger	Sealed top-roller plunger	Horizontal plunger
Item					Model	Model	Model
			No indicat	or	WLD2-55	WLD28-55	WLSD-55
Airtight se	al		Indicator	LED	WLD2-55LD	WLD28-55LD	WLSD-55LD
	Neon		Neon	WLD2-55LE	WLD28-55LE	_	
lla was atta	Molded	-139			WLD2-139	WLD28-139	WLSD-139
Hermetic seal	terminals	-140	No indicat	or	_	WLD28-140	_
	Anti-coola	nt			WLD2-RP60	WLD28-RP60	WLSD-RP60
Heat-resistant		WLD2-TH	WLD28-TH	WLSD-TH			
Low-temperature No indicator		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.

			Horizontal-roller plunger	Coil spring (spring diameter: 6.5)	Coil spring (resin rod diameter: 8)		
Item					Model	Model	Model
			No indicat	or	WLSD2-55	WLNJ-55	WLNJ-255
Airtight sea	al		Indicator	LED	WLSD2-55LD	WLNJ-55LD	WLNJ-255LD
			indicator	Neon	_	_	_
l la uma attia	Molded	-139			WLSD2-139	WLNJ-139	_
Hermetic seal	terminals	-140	No indicator	WLSD2-140	WLNJ-140	WLNJ-2140	
	Anti-coola	nt			WLSD2-RP60	WLNJ-RP60	WLNJ-2RP60
Heat-resistant		WLSD2-TH	WLNJ-TH	_			
Low-temperature No indicator		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

Actuator			Roller le	Sealed top-roller plunger	
		Double nut lever	Allen-head lever		
Item		Model	Model	Model	
	Basic		WLCA2-LEAS	WLCA2-LES	WLD28-LES
Neon lamp	ration Overtravel	General-purpose	WLH2-LEAS	WLH2-LES	_
indicator		High-sensitivity	WLG2-LEAS	WLG2-LES	_
	High-precision		_	WLGCA2-LES	_
	Basic		WLCA2-LDAS	WLCA2-LDS	WLD28-LDS
	LED operation Overtravel	General-purpose	WLH2-LDAS	WLH2-LDS	_
indicator		High-sensitivity	WLG2-LDAS	WLG2-LDS	_
	High-precis	ion	_	WLGCA2-LDS	_

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

Long-life Switches

		Item		LED operation indicator *1			
				Ove	rtravel	High-precision	
			Basic	General-purpose	High-sensitivity	riigii-precision	
Actuator			Model	Model	Model	Model	
Roller lever, screw terminal		WLMCA2-LD	WLMH2-LD	WLMG2-LD	WLMGCA2-LD		
©	2-conductor	AC	WLMCA2-LDK13A	WLMH2-LDK13A	WLMG2-LDK13A	WLMGCA2-LDK13A	
Roller lever,	2-conductor	DC	WLMCA2-LDK13	WLMH2-LDK13	WLMG2-LDK13	WLMGCA2-LDK13	
connector	4 conductor	AC	WLMCA2-LDK43A	WLMH2-LDK43A	WLMG2-LDK43A	WLMGCA2-LDK43A	
	4-conductor	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	_	

Connecting Cables

Straight Cable



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

^{*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.

Individual Parts Heads

Actuator ty	ре	Set model	Head model (with Actuator)
		WLCA2	WL-1H1100
	0	WLG2	WL-2H1100
Roller lever		WLH2	WL-2H1100-1 *
		WLCA2-2	WL-3H1100
		WLCA2-2N	WL-6H1100
	0	WLCA12	WL-1H2100
A		WLG12	WL-2H2100
Adjustable roller lever		WLH12	WL-2H2100-1 *
TOTICI ICVCI		WLCA12-2	WL-3H2100
		WLCA12-2N	WL-6H2100
	1	WLCL	WL-4H4100
Adjustable	l l	WLGL	WL-2H4100
rod lever		WLCL-2	WL-3H4100
	r—1	WLCL-2N	WL-6H4100

Actuator type	Set model	Head model (with Actuator)
	WLD	WL-7H100
Top plunger	WLD2	WL-7H200
Top plunger	WLD3	WL-7H300
	WLD28	WL-7H400
11	WLSD	WL-8H100
Horizontal plunger	WLSD2	WL-8H200
planger	WLSD3	WL-8H300
	WLCA32-41	WL-5H5100
Fork lever	WLCA32-42	WL-5H5102
lock	WLCA32-43	WL-5H5104
, <u>, , , , , , , , , , , , , , , , , , </u>	WLCA32-44	WL-5H5104
П	WLNJ	WL-9H100
Coil spring	WLNJ-30	WL-9H200
Con spring	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
	Basic R38	Model WLRCA2
		-
0	High-precision R38	WLRGCA2
Switches for roller levers	High-sensitivity overtravel, 80°	WLRG2
	General-purpose overtravel, 80°	WLRH2
	Overtravel, 90° operation	WLRCA2-2
	Overtravel, 90° operation	WLRCA2-2N
	Basic	WLRCA2
	High-sensitivity overtravel, 80°	WLRG2
Switches for adjustable roller levers	General-purpose overtravel, 80°	WLRH2
Toller levels	Overtravel, 90° operation	WLRCA2-2
	Overtravel, 90° operation	WLRCA2-2N
1-	Basic, 25 to 140 mm	WLRCL
Switches for adjustable	High-sensitivity overtravel, 80°, 25 to 140 mm	WLRG2
rod lever	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	Cover only with indicator
Item	Model
Neon lamp	WL-LE
LED	WL-LD

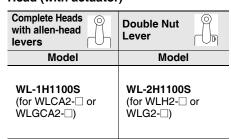
Note: The default setting is "light-ON when not operating."

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



Allen-head Lever	9	Double Nut Lever	
Model		Model	
WL-1A103S Roller lever		WL-1A105S Roller Lever	

Cover with Indicator
Model
Neon lamp WL-LES
LED (LED) WL-LDS

-	
Switches	
without	
levers	
Model	
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)		
	WLCA2	WL-1H1100		
1	WLCA2-7	WL-1H1200		
1	WLCA2-8	WL-1H1300		
	WLCA12	WL-1H2100		
2	WLCL	WL-4H4100 *		
	WLH2	WL-2H1100-1		
	WLH12	WL-2H2100-1		
3	WLHL	WL-2H4100		
	WLHAL4	WL-2H4106		
	WLHAL5	WL-2H4107		
	WLCA2-2N	WL-6H1100		
4	WLCA12-2N	WL-6H2100		
	WLCL-2N	WL-6H4100		
	WLCA2-2	WL-3H1100		
5	WLCA12-2	WL-3H2100		
	WLCL-2	WL-3H4100		
	WLG2	WL-2H1100		
6	WLG12	WL-2H2100		
	WLGL	WL-2H4100		
	WLCA32-41	WL-5H5100		
7	WLCA32-42	WL-5H5102		
7	WLCA32-43	WL-5H5104		
	WLCA32-44	WL-5H5104		
	WLD	WL-7H100		
8	WLD2	WL-7H200		
	WLD3	WL-7H300		
9	WLD28	WL-7H400 *		
	WLSD	WL-8H100		
10	WLSD2	WL-8H200		
	WLSD3	WL-8H300		
	WLNJ	WL-9H100		
11	WLNJ-30	WL-9H200		
12	WLNJ-2	WL-9H300 *		
13	WLNJ-S2	WL-9H400 *		

 $^{^{\}star}$ 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	
CSA	CSA C22.2 No.14	LR45746	
TÜV Rheinland	EN60947-5-1	J50022353, J9950023, J9950959	Contact your OMRON representative for information on approved models.
CCC (CQC)	GB14048.5	2004010305128675	

General-purpose/Weather-proof Switches

Ratings

Standard-load Switches

Item	5	Non-induct		ive loa	d (A)	Inductive load (A)			(A)
	Rated voltage (V)	Resistive load		Lamp load		Inductive load		Motor load	
Model	(-)	NC	NO	NC	Ю	NC	Ю	NC	NO
Basic models, overtravel models (except	125 VAC 250 VAC 500 VAC	1	0 0 0	3 2 1.5	1.5 1 0.8		0 0 3	5 3 1.5	2.5 1.5 0.8
for high- sensitivity models), and high-precision models	8 VDC 14 VDC 30 VDC 125 VDC 250 VDC		.8	6 6 4 0.2 0.1	3 3 0.2 0.1		.8	0. 0.	6 1 .2
High-sensitivity overtravel	125 VAC 250 VAC	5 5				_	_		
models	125 VDC 250 VDC	0.		_	_	_	_	_	_

Inrush cur-	NC	30 A max. (15 A max. *)
rent	NO	20 A max. (10 A max. *)

* For high-sensitivity

- 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.

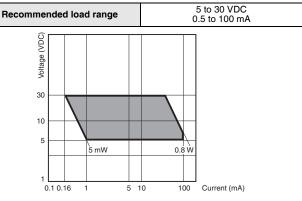
 5. For PC loads, use the microload models.

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	0.1	

Operation in the following ranges will produce optimum performance.



Recommended load range	5 VDC 1 mA

Approved Standard Ratings UL/CSA

Standard-load Switches: A600, NEMA

Rated	Carry cur-	Current (A)		Volt-amperes (VA)		
voltage	rent	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 cur- rent (Ithe)	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 (le)	2A
Rated operating voltage (Ue)	250V

Indicator-equipped Switches

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

Characteristics

Degree of p	rotection	IP67		
Durability	Mechanical	15,000,000 operations min. *2		
*1	Electrical	750,000 operations min. *3		
Operating speed		1 mm/s to 1 m/s (in case of WLCA2)		
Operating	Mechanical	120 operations/minute min.		
frequency Electrical		30 operations/minute min.		
Rated frequ	ency	50/60 Hz		
Insulation r	esistance	100 MΩ min. (at 500 VDC)		
Contact res	istance	25 mΩ max. (initial value for the built-in switch when tested alone) *6		
	Between terminals of the same polarity	1,000 VAC (600 VAC), 50/60 Hz for 1 min		
Dielectric strength	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 termi- nal and non-current- carrying metal part	2,200 VAC (1,500 VAC), 50/60 Hz for 1 min/Uimp 2.5 kV		
Rated insula	ation voltage (Ui)	250 V (EN60947-5-1)		
Pollution de environmen	egree (operating nt)	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)		
Convention current (Ithe	al enclosed thermal e)	10 A, 0.5 A (EN60947-5-1)		
Protection a	against electric shock	Class I		
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude *4		
Shock	Destruction	1,000 m/s ² max.		
resistance	Malfunction	300 m/s ² max. *4		
Ambient op	erating temperature	-10°C to +80°C (with no icing) *5		
•	erating humidity	35% to 95% RH		
Weight		Approx. 275 g (in case of WLCA2)		
Nister d. The	- la			

- 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 max.
 *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 m Ω max. (initial value for built-in switch).

Spatter-prevention Switches

Ratings Screw terminals

Item		Non-	induct	ive loa	d (A)	Inductive load (A)			
	Rated voltage (V)	Resistive load				Inductive load		Motor load	
Model		NC	NO	NC	NO	NC	NO	NC	NO
WL□-LES	125 VAC 250 VAC		0 0	3 2	1.5 1		0 0	5 3	2.5 1.5
	115 VAC	1	0	3	1.5	1	0	5	2.5
WL□-LDS	12 VDC 24 VDC 48 VDC	10 6 3		6 4 2	3 3 1.5	1	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 NC		30 A max.
current	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	Carry	Curre	nt (A)	Volt-amp	eres (VA)
voltage	current	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 (le)	
Rated operating voltage (Ue)	250 V

Characteristics

Degree of p	rotection	IP67
Durability	Mechanical	15,000,000 operations min. *2
*1	Electrical	750,000 operations min. *3
Operating s	peed	1 mm/s to 1 m/s (in case of WLCA2)
Operating	Mechanical	120 operations/minute min.
frequency	Electrical	30 operations/minute min.
Rated frequ	ency	50/60 Hz
Insulation r	esistance	100 MΩ min. (at 500 VDC)
Contact res	istance	$25~\text{m}\Omega$ max. (initial value for the builtin switch when tested alone)
	Between terminals of the same polarity	1,000 VAC (600 VAC), 50/60 Hz for 1 min
Dielectric strength	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
(Ui)	ation voltage	250 V (EN60947-5-1)
	environment)	3 (EN60947-5-1)
device (SCF		10 A, fuse type gG or gl (IEC60269)
Conditional current	short-circuit	100 A (EN60947-5-1)
Convention thermal cur	al enclosed rent (Ithe)	10 A, 0.5 A (EN60947-5-1)
Protection a electric sho		Class I
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude
Shock	Destruction	1,000 m/s ² max.
resistance Malfunction		300 m/s ² max.
Ambient op temperature	_	-10°C to +80°C (with no icing)
Ambient op humidity	erating	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		Non-	Non-inductive load (A)				Inductive load (A)			
	Rated voltage (V)		stive ad	Lamp load		Induc- tive load		Motor load		
Model	(•)	NC	NO	NC	NO	NC	NO	NC	NO	
Basic models,	115 AC	10		3	1.5	10		5	2.5	
overtravel mod- els, (except for high-sensitivity models), and high-precision models	12 DC 24 DC 48 DC 115 DC		0 6 3).8	6 4 2 0.2	3 3 1.5 0.2		0 6 3 0.8	2	1	
High-sensitivity	115 AC	5		-	_	_	_	-		
overtravel mod- els	115 DC	C).4	_		_	-			

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

* For high-sensitivity overtravel models.

Direct-wired Connector and Pre-wired Connector Switches

	B	Non-inductive load (A)				Inductive load (A)				
Model	Rated voltage (V)	Resistive load		Lamp	Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO	
	12 DC	3	3	3	3	3	3	3	3	
DC	24 DC	3	3	3	3	3	3	3	3	
ЪС	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.

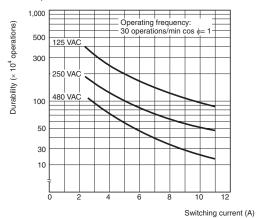
Characteristics

Degree of protection		IP67		
	Mechanical	30,000,000 operations min.		
Durability *	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 sp	eed	1 mm/s to 1 m/s (in case of WLCA2)		
Operating	Mechanical	120 operations/minute		
frequency	Electrical	30 operations/minute		
Rated freque	ency	50/60 Hz		
Insulation re	sistance	100 MΩ min. (at 500 VDC)		
Contact resistance		$25~\text{m}\Omega$ max. (initial value for the builtin switch when tested alone)		
	Between terminals of the same polarity	1,000 VAC (except connector models)		
Dielectric strength (50/60 Hz for 1 min)	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	Destruction	1,000 m/s ² max.		
resistance	Malfunction	300 m/s ² max.		
Ambient operating temperature		-10°C to +80°C (with no icing)		
Ambient ope humidity	rating	35% to 95%RH		
Weight		Approx. 275 g (in case of WLCA2)		

Note: The figures in parentheses for dielectric strength, are those for overtravel $% \left(1\right) =\left(1\right) \left(1\right$ (high-sensitivity) or connector models.

Engineering Data Electrical Durability: cos = 1

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

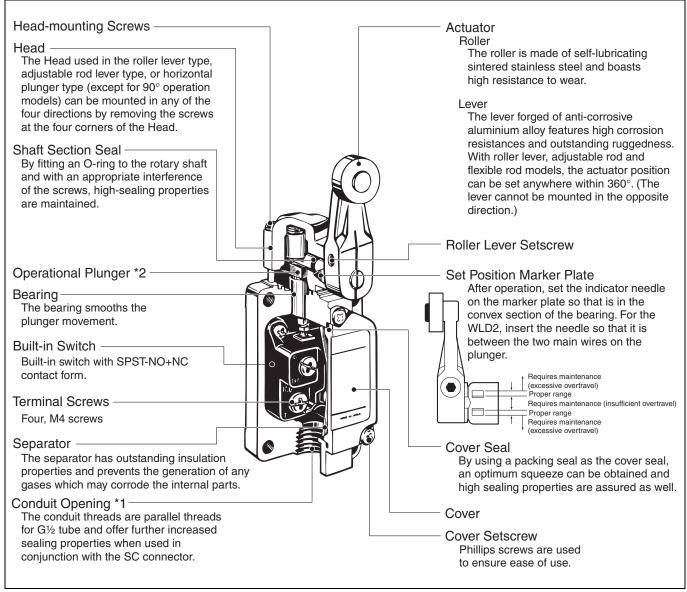


^{*} The values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.

Structure and Nomenclature

Structure

General-purpose Switches: WLCA2



^{*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.)

Light-ON when Operating

Light-ON when Not Operating

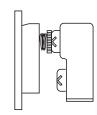


- Indicator

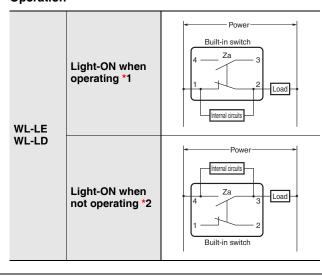
The indicator is either a neon lamp or an LED. Models with LED indicators have a built-in rectifier stack, so it is not necessary to change the polarity.

Contact Spring

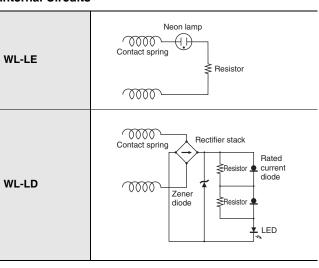
The built-in switch's terminal screws are used to connect the indicator terminal. Since the connection spring (coil spring) is used for this connection, it will not be necessary to connect the indicator terminal. When a ground terminal is provided however, a lead wire must be used.



Operation



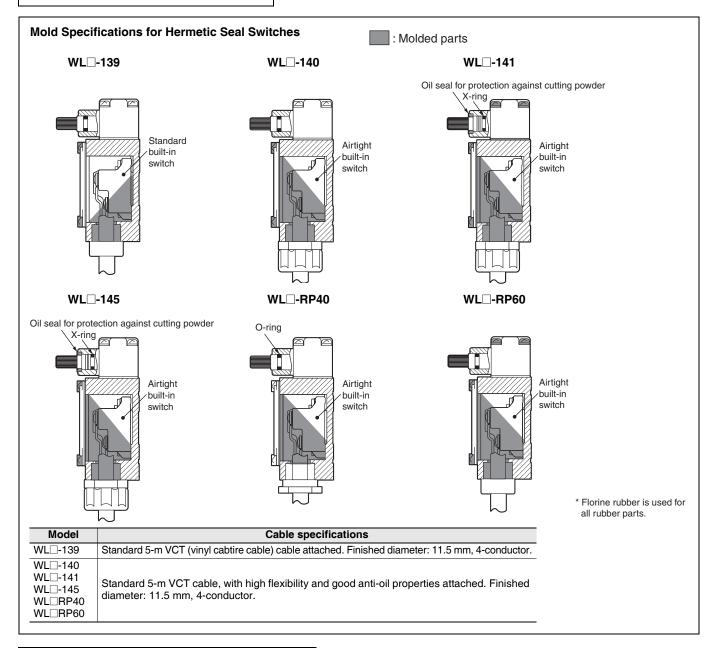
Internal Circuits



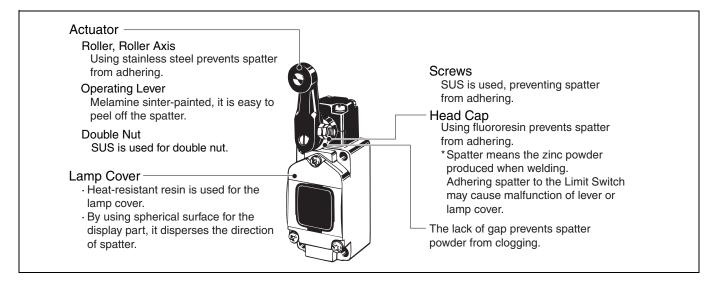
Note: 1. The indicator cover cannot be replaced on the molded terminals. In all cases the indicator does not light when the load is ON.

- 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.

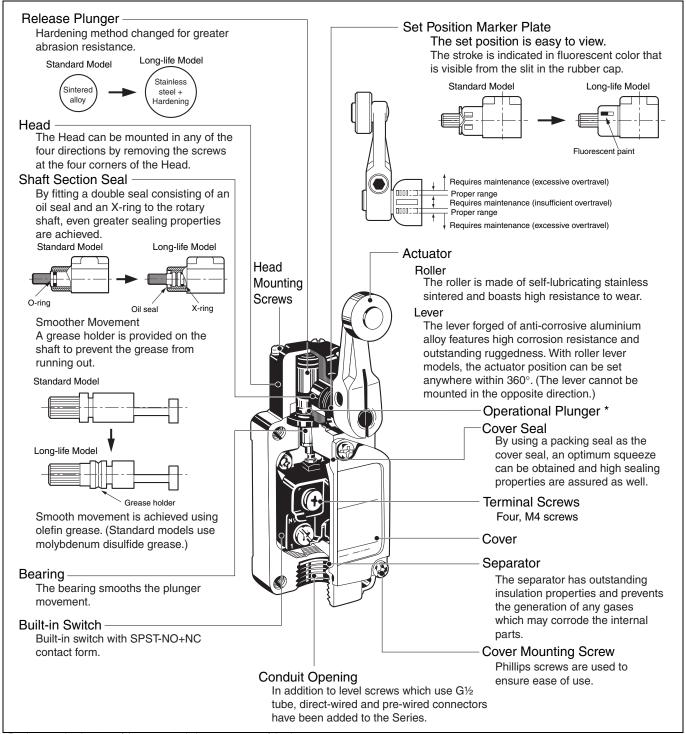
Environment-resistant Switches



Spatter-prevention Switches: WLCA2-LEAS

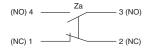


Long-life Switches: WLMGCA2-LD

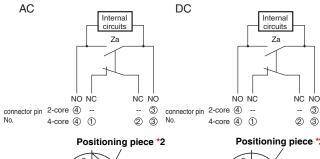


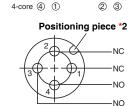
^{*}By changing the direction of the operational plunger, any one of the three operational directions (both sides, left, or right) can be selected.

Contact Forms Screw Terminal Switches

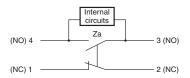


Direct-wired Connector Switches Indicator-equipped (Light-ON when Not Operating) Switches *1

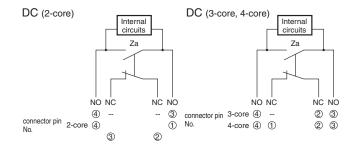




Screw Terminal Switches Indicator-equipped (Light-ON when Not Operating) Switches *1



Pre-wired Connector Switches Indicator-equipped (Light-ON when Not Operating) Switches *1



Note: 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 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.

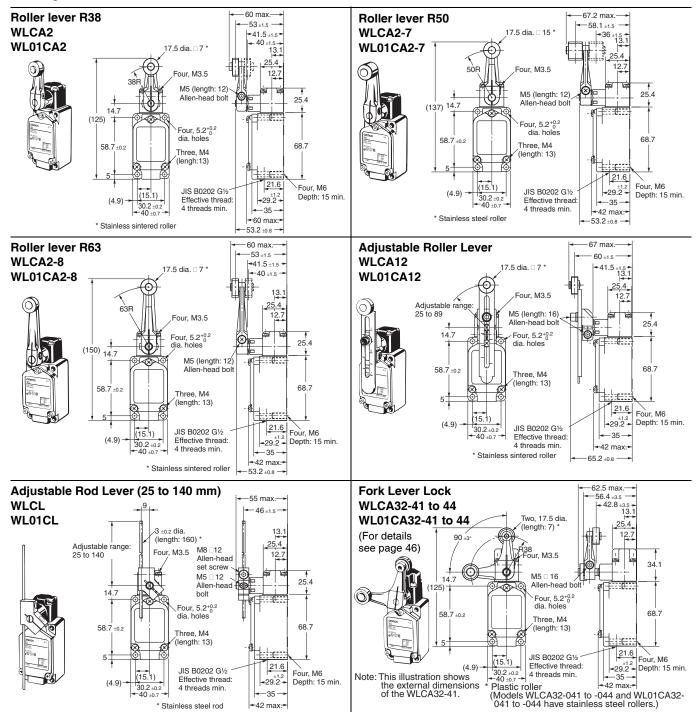
(Unit: mm)

General-purpose Models

Standard Models

Basic

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



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

	Model	WLCA2	WLCA2-7	WLCA2-8	WLCA12 *1	WLCL *2
Operating characte	WL01CA2	WL01CA2-7	WL01CA2-8	WL01CA12 *1	WL01CL *2	
Operating force	OF max.	13.34 N	10.2 N	8.04 N	13.34 N	1.39 N
Release force	RF min.	2.23 N	1.67 N	1.34 N	2.23 N	0.27 N
Pretravel	PT	15° ±5°	15° ±5°	15° ±5°	15° ±5°	15° ±5°
Overtravel	OT min.	30°	30°	30°	30°	30°
Movement Differential	MD max.	12°	12°	12°	12°	12°

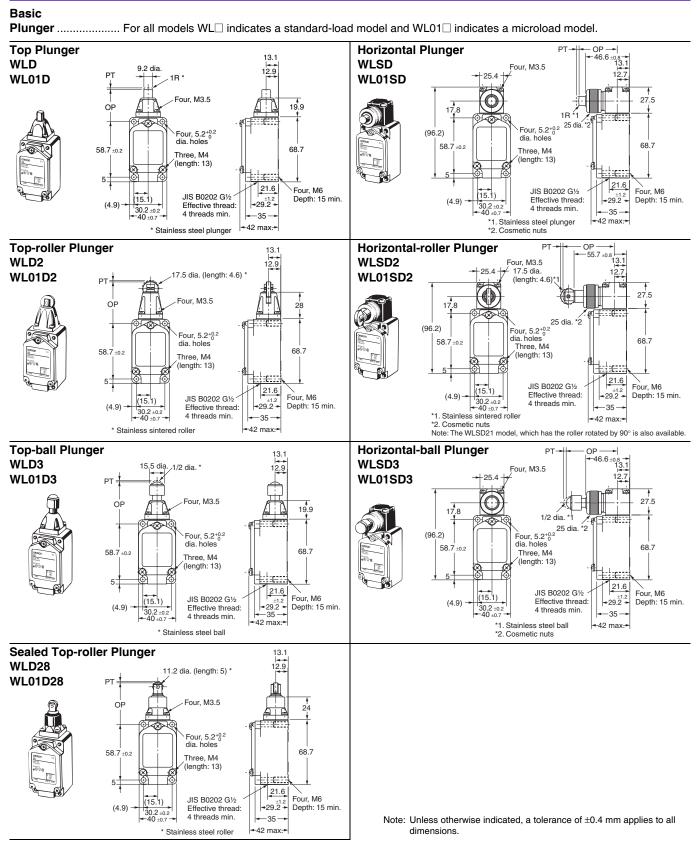
^{*1.} The operating characteristics for WLCA12 and WL01CA12 are measured at the lever length of 38 mm.

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

Model	WLCA32-41 to 44 *1 WL01CA32-41 to 44 *1
Operating characteristics	WL01CA32-41 to 44 *1
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°

OF and RF fo	or WLCA12, with a lever length of 89 mm.
	WLCA12 WL01CA12

	WLCA12, WL01CA12
OF	5.68 N
RF	0.95 N



Operating characteristi	Model	WLD	WLD2	WLD3	WLD28	WLSD2	WLSD3	WLSD
	cs	WL01D	WL01D2	WL01D3	WL01D28	WL01SD2	WL01SD3	WL01SD
Operating force	OF max.	26.67 N	26.67 N	26.67 N	16.67 N	40.03 N	40.03 N	40.03 N
Release force	RF min.	8.92 N	8.92 N	8.92 N	4.41 N	8.89 N	8.89 N	8.89 N
Pretravel	PT max.	1.7 mm	1.7 mm	1.7 mm	1.7 mm	2.8 mm	2.8 mm	2.8 mm
Overtravel	OT min.	6.4 mm	5.6 mm	4 mm	5.6 mm	5.6 mm	4 mm	6.4 mm
Movement Differential	MD max.	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm
Operating Position Total travel Position	OP	34 ±0.8 mm	44 ±0.8 mm	44.5 ±0.8 mm	44 ±0.8 mm	54.2 ±0.8 mm	54.1 ±0.8 mm	40.6 ±0.8 mm
	TTP max.	29.5 mm	39.5 mm	41 mm	39.5 mm	—	—	—

Basic

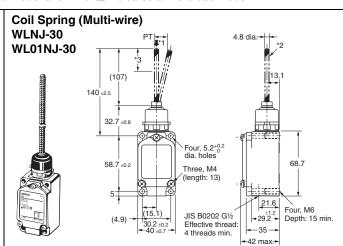
Flexible Rod For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.

Coil Spring 6.5 dia. -WLNJ WL01NJ 140 ±2.5 32.7 ±0.8 Four. 5.2+0.2 58.7 68.7 Three, M4 (length: 13) - : 21.6 JIS B0202 G1/2 -29.2 - Effective thread: 4 threads min. Depth: 15 min. (4.9)-35

*1. The coil spring may be operated from any direction except the axial direction (↓).
*2. Stainless steel coil spring

-42 max.•

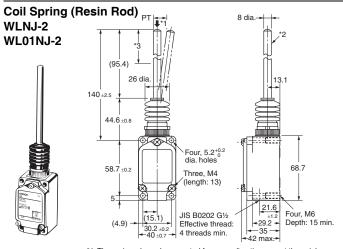
- *3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.



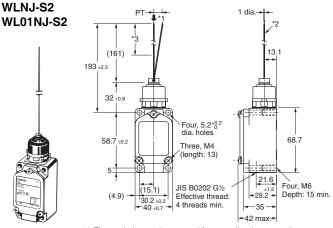
- *1. The coil spring may be operated from any direction except the axial direction (↓).
 *2. Piano wire coil

Steel Wire

*3. Optimum operating range of the coil spring is within 1/3 of the entire length from the top end.



- *1. The resin rod may be operated from any direction except the axial direction (\$\dpsi\$).
 *2. Polyamide resin rod
- *3. Optimum operating range of the resin rod is within 1/3 of the entire length from the top end.



- *1. The steel wire may be operated from any direction except the
- 1. The steel wine thay be operated from any unection except the axial direction (↓).

 2. Stainless steel wire

 3. Optimum operating range of the steel wire is within 1/3 of the entire length from the top end.

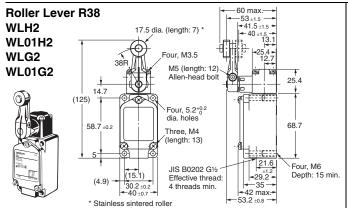
Note: Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

Operating charac		WLNJ * WL01NJ *	WLNJ-30 * WL01NJ-30 *	WLNJ-2 * WL01NJ-2 *	WLNJ-S2 * WL01NJ-S2 *
Operating force	OF max.	1.47 N	1.47 N	1.47 N	0.28 N
Pretravel	PT	20 ±10mm	20 ±10mm	40 ±20mm	40 ±20mm

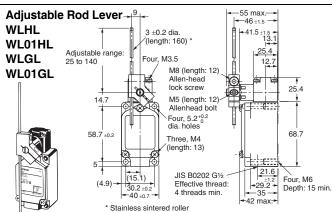
^{*} These values are taken from the top end of the wire or spring.

Overtravel

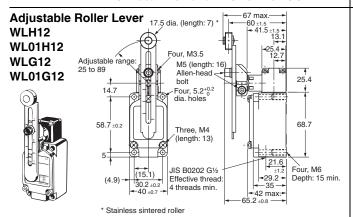
General-purpose/High-sensitivity Models For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.



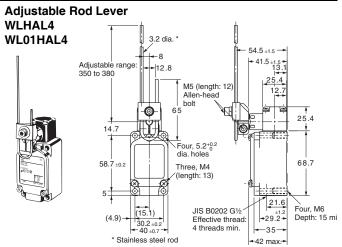
- Note: 1. WL \square G2 is identical to other models except in the shape of the set position marker plate.
 - 3. The built-in switch for WLG2 is W-10FB3-8.
 - 2. The built-in switch for WLH2 is W-10FB3.



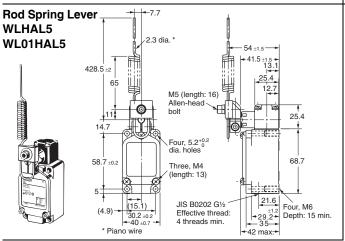
- Note: 1. WL \square GL is identical to other models except in the shape of the set position marker plate.
 - 2. The built-in switch for WLHL is W-10FB3.
 - 3. The built-in switch for WLGL is W-10FB3-8.



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



- Note: 1. Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions
- Note: 2. The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N highsensitivity, high-precision models, order WL models instead.



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

	WLH12, WLA01H12	WLG12, WL01G12
OF	4.18 N	4.18 N
RF	0.42 N	0.42 N

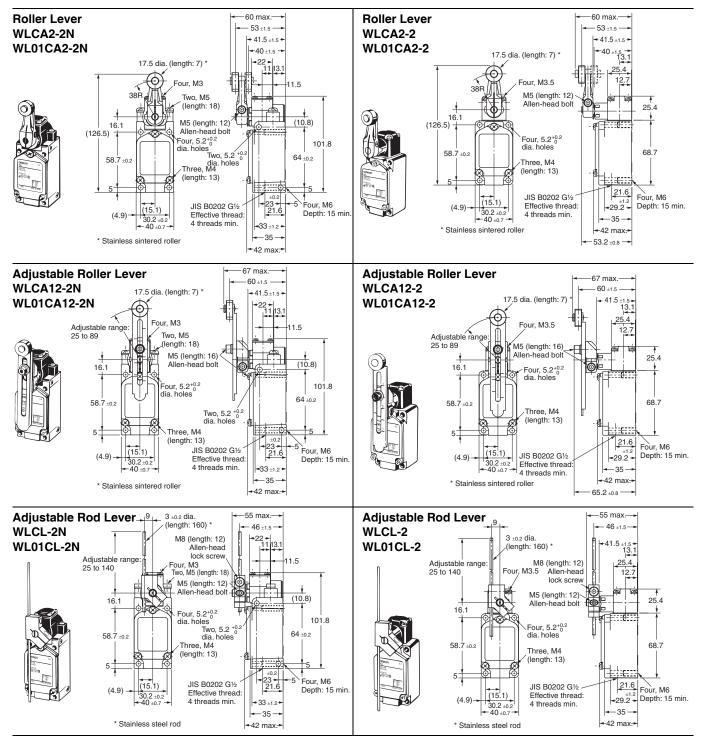
Operating character		WLH2 WL01H2	WLG2 WL01G2	WLH12 *1 WL01H12 *1	WLG12 *1 WL01G12 *1	WLHL *1 WL01HL *1	WLGL *2 WL01GL *2	WLHAL4*3 WL01HAL4*3	WLHAL5 WL01HAL5
Operating force	OF max.	9.81 N	9.81 N	9.81 N	9.81 N	2.84 N	2.84 N	0.98 N	0.90 N
Release force	RF min.	0.98 N	0.98 N	0.98 N	0.98 N	0.25 N	0.25 N	0.15 N	0.09 N
Pretravel	PT	15° ±5°	10°+2°	15° ±5°	10°+2°	15° ±5°	10°+2°	15° ±5°	15° ±5°
Overtravel	OT min.	55°	65°	55°	65°	55°	65°	55°	55°
Movement Differenti	al MD max.	12°	7°	12°	7°	12°	7°	12°	12°

Note: 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

- *1. The operating characteristics of WLH12, WL01HL12, WLG12, and WL01G12 are measured at the lever length of 38 mm. *2. The operating characteristics of WLHL, WL01HL, WLGL, and WL01GL are measured at the rod length of 140 mm. *3. The operating characteristics of WLHAL4, and WL01HAL4 are measured at the rod length of 380 mm.

Overtravel

Side-installation Models ... For all models WL□ indicates a standard-load model and WL01□ indicates a microload model.



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

Operating charac			WLCA12-2N *1 WL01CA12-2N *1	WLCL-2N *2 WL01CL-2N *2	WLCA2-2 WL01CA2-2	WLCA12-2 *1 WL01CA12-2 *1	WLCL-2 *2 WL01CL-2 *2
Operating force	OF max.	9.61 N	9.61 N	2.84 N	8.83 N	8.83 N	2.55 N
Release force	RF min.	1.18 N	1.18 N	0.25 N	0.49 N	0.49 N	0.1 N
Pretravel	PT	20° max.	20° max.	20° max.	25° ±5°	25° ±5°	25° ±5°
Overtravel	OT min.	70°	70°	70°	60°	60°	60°
Movement Differenti	al MD max.	10°	10°	10°	16°	16°	16°

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

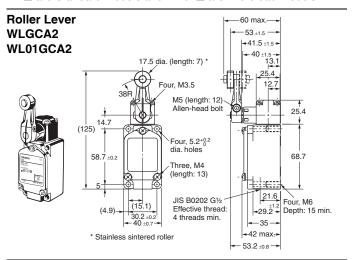
OF and RF for WLCA12-2N and WL01CA12-2N, with a lever length of 89 mm.

	WLCA12-2N, WLA01CA12-2N			
OF	4.10 N			
RF	0.50 N			

^{*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.



Operating characte		WLGCA2 WL01GCA2
Operating force	OF max.	13.34 N
Release force	RF min.	1.47 N
Pretravel	PT	5° +2°
Overtravel	OT min.	40°
Movement Differential MD max.		3°

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

Note: 2. The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N high-sensitivity, high-precision models, order WL models instead.

Sensor I/O Connector Switches

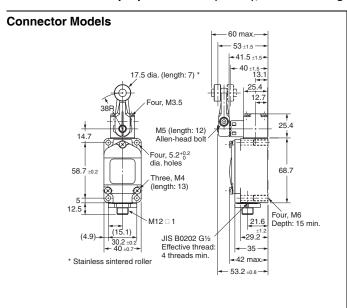
Direct-wired Connector/Pre-wired Connector Models

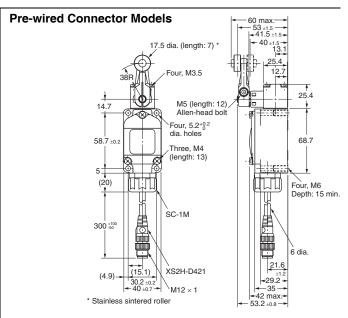
Refer to page 17 for the connecting cable.

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)





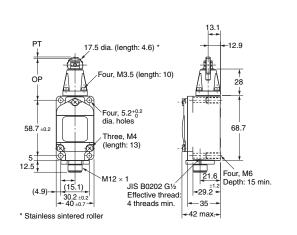
Note: 1. Only the dimension of the set position marker plate is different for WLG2 Models.

- 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 characte	Actuator		High-precision roller	Overdrive general-	Overdrive high-sensitivity
Operating characte	eristics	actuator	lever actuator	purpose actuator	actuator
Operating force	OF max.	13.34 N	13.34 N	9.81 N	9.81 N
Release force	RF min.	2.23 N	1.47 N	0.98 N	0.98 N
Pretravel	PT	15° ±5°	5°+2°	15° ±5°	10°+2°
Overtravel	OT min.	30°	40°	55°	65°
Movement Different	ial MD max.	12°	3°	12°	7°

Top-roller Plunger (WLD2)

Direct-wired Connector Models



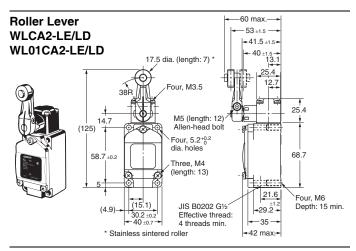
Pre-wired Connector Models 17.5 dia. (length: 4.6) * -12.9 Four, M3.5 (length: 10) ÓР 28 Four, 5.2^{+0.2} dia. holes 58.7 68.7 Three, M4 (length: 13) Four, M6 Depth: 15 min. SC-1M 300 +100 6 dia. 21.6 XS2H-D421 30.2 ±0.2 40 ±0.7 M12 × 1 * Stainless sintered roller

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.

Actuator Operating characteristics		Top-roller plunger
Operating force O	F max.	26.67 N
Release force R	F min.	8.92 N
Pretravel P	T max.	1.7 mm
Overtravel O	T min.	5.6 mm
Movement Differential N	ID max.	1 mm
Operating Position O	Ρ	44 ±0.8mm
Total travel Position T	TP max.	39.5 mm

Indicator-equipped Models

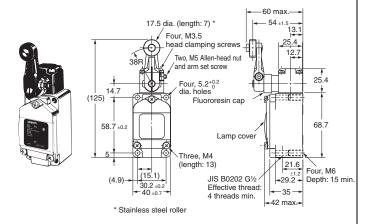


Note: Unless otherwise indicated, a tolerance of $\pm 0.4 \ \text{mm}$ applies to all dimensions.

Operating characteris	WLCA2-LE/LD WL01CA2-LE/LD	
Operating force	OF max.	13.34 N
Release force	RF min.	2.23 N
Pretravel	PT	15° ±5°
Overtravel	OT min.	30°
Movement Differential	MD max.	12°

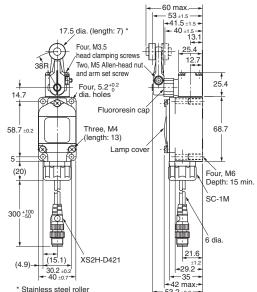
Spatter-prevention Models

Roller Lever (Screw Terminals)
WLCA2-□S/WL01□-□S
WLH2-□S/WLG2-□S
WLGCA2-□S

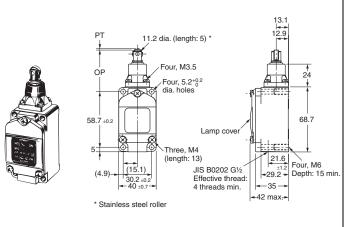


Roller Lever (Pre-wired connectors)
WLCA2-\B-M1J*/WL01\-\B-M1J*
WLH2-\B-M1J*/WLG2-\B-M1J*
WLGCA2-\B-M1J*

* External dimensions are the same even for different core wires

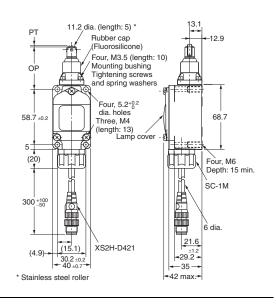


Sealed Top-roller Plunger (Screw Terminals) WLD28-□S



Sealed Top-roller Plunger (Pre-wired connectors) WLD28-\(\sigma\)-\(\sigma\)-\(\sigma\)-\(\sigma\)-\(\sigma\)

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



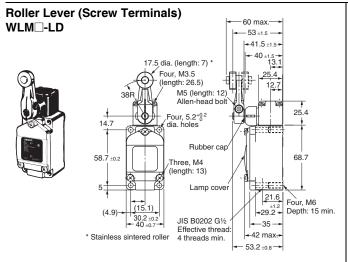
Note: 1. Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

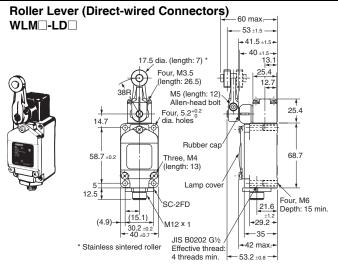
Note: 2. The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N high-sensitivity, high-precision models, order WL models instead.

	Actuator	Roller Lever			Cooled Ten veller	
		Basic	Overtravel models		High-precision	Sealed Top-roller Plunger
Operating characteristics		Dasic	General-purpose	High-sensitivity	riigii-piecisioii	i idiigoi
Operating force	OF max.	13.34 N	9.81 N	9.81 N	13.34 N	16.67 N
Release force	RF min.	2.23 N	0.98 N	0.98 N	1.47 N	4.41 N
Pretravel	PT	15° ±5°	15° ±5°	10°+2°	5°+2°	1.7 mm max.
Overtravel	OT min.	30°	55°	65°	40°	5.6 mm
Movement Differential	MD max.	12°	12°	7°	3°	1 mm
Operating Position	OP	_	_	_	_	44 ±0.8 mm
Total travel Position	TTP max.	_	_	_	_	39.5 mm

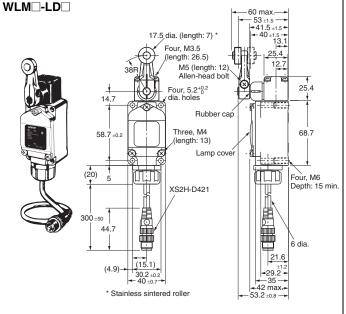
Long-life Models

Rotating Lever Models





Roller Lever (Pre-wired Connectors)

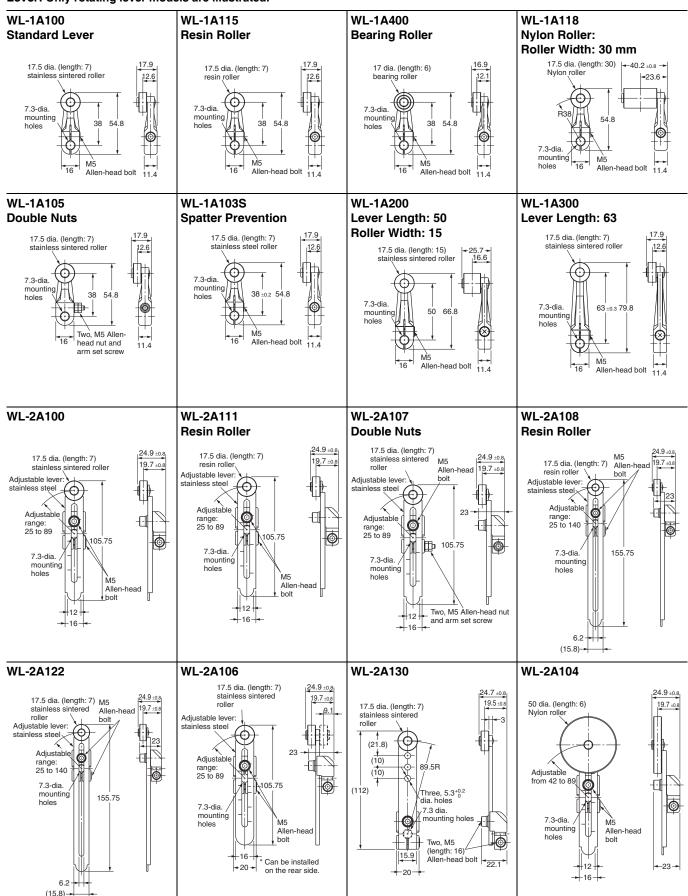


- Note: 1. Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.
- Note: 2. The WL-N high-sensitivity, high-precision models have been integrated into the WL Series. If you are scheduled to use the WL-N high-sensitivity, high-precision models, order WL models instead.

Operating characteris	Model tics	WLMCA2-LD□ Basic models	WLMH2-LD□ General-purpose overtravel models	WLMG2-LD□ High-sensitivity overtravel models	WLMGCA2-LD□ High-precision models
Operating force	OF max.	9.81 N	9.81 N	9.81 N	13.34 N
Release force	RF min.	0.98 N	0.98 N	0.98 N	1.47 N
Pretravel	PT	15° ±5°	15° ±5°	10°+2°	5°+2° 0°
Overtravel	OT min.	30°	55°	65°	40°
Movement Differential	MD max.	12°	12°	7°	3°

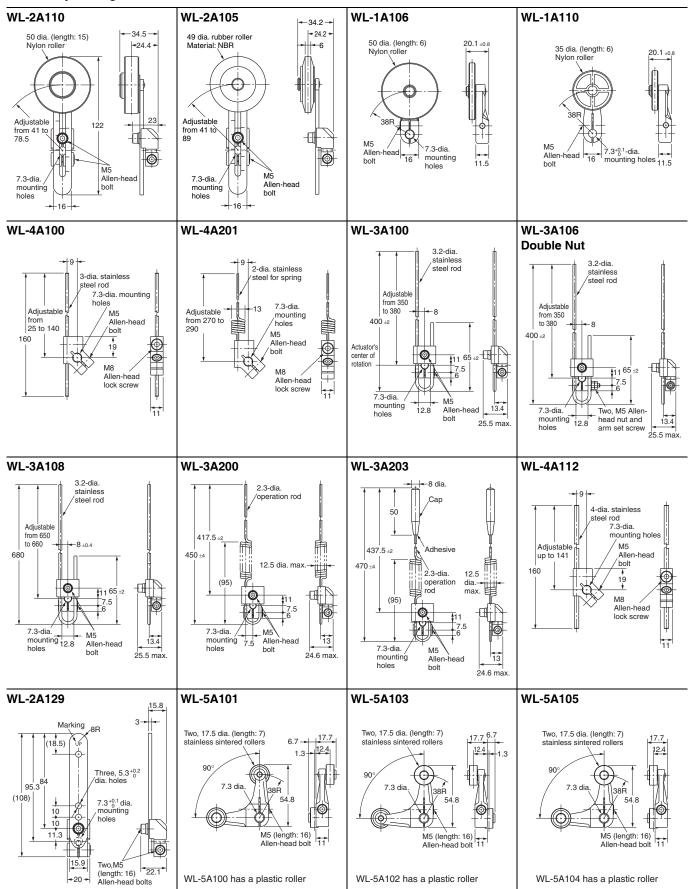
Actuators (Levers Only)

Lever: Only rotating lever models are illustrated.



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

Lever: Only rotating lever models are illustrated.



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.

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

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

WL	WL-N
WLCA2	WLCA2-N
WL01CA2	WLCA2-N
WLH2	WLCA2-N
WL01H2	WLCA2-N
WLCA2-2	WLCA2-2-N
WL01CA2-2	WLCA2-2-N
WLCA2-2N	WLCA2-2N-N
WL01CA2-2N	WLCA2-2N-N
WLCA2-7	WLCA2-7-N
WL01CA2-7	WLCA2-7-N
WLCA2-8	WLCA2-8-N
WL01CA2-8	WLCA2-8-N
WLCA12	WLCA12-N
WL01CA12	WLCA12-N
WLH12	WLCA12-N
WL01H12	WLCA12-N
WLCA12-2	WLCA12-2-N
WL01CA12-2	WLCA12-2-N
WLCA12-2N	WLCA12-2N-N
WL01CA12-2N	WLCA12-2N-N
WLCL	WLCL-N
WL01CL	WLCL-N
WLHL	WLCL-2N-N
WL01HL	WLCL-2N-N
WLCL-2	WLCL-2-N
WLCL-2N	WLCL-2N-N
WL01CL-2N	WLCL-2N-N
WLHAL4	WLCAL4-N
WLHAL5	WLCAL5-N
WLCA32-41	WLCA32-41-N
WL01CA32-41	WLCA32-41-N
WLCA32-42	WLCA32-42-N
WLCA32-43	WLCA32-43-N
WL01CA32-43	WLCA32-43-N
WLCA32-44	WLCA32-44-N
WL01CA32-44	WLCA32-44-N
WLD	WLD18-N
WL01D	WLD18-N
WLD2	WLD28-N
WL01D2	WLD28-N
WLD3	WLD38-N
WL01D3	WLD38-N
WLD28	WLD28-N
WL01D28	WLD28-N
WLSD	WLSD-N
WL01SD	WLSD-N
WLSD2	WLSD2-N
WL01SD2	WLSD2-N
WLSD3	WLSD3-N
WL01SD3	WLSD3-N

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

WL	WL-N
WLD3-LD	WLD38-LD-N
WLD28-LE	WLD28-LE-N
WLD28-LD	WLD28-LD-N
WLSD-LE	WLSD-LE-N
WLSD-LD	WLSD-LD-N
WLSD2-LE	WLSD2-LE-N
WLSD2-LD	WLSD2-LD-N
WLSD3-LE	WLSD3-LE-N
WLSD3-LD	WLSD3-LD-N
WLNJ-LE	WLNJ-LE-N
WLNJ-LD	WLNJ-LD-N
WLNJ-30LE	WLNJ-30LE-N
WLNJ-30LD	WLNJ-30LD-N
WLNJ-2LE	WLNJ-2LE-N
WLNJ-2LD	WLNJ-2LD-N
WLNJ-S2LE	WLNJ-S2LE-N
WLNJ-S2LD	WLNJ-S2LD-N
WLCA2-LDK13	WLCA2-LDK13-N
WLCA2-55LDK13	WLCA2-55LDK13-N
WLCA2-LDK43	WLCA2-LDK43-N
WLCA2-55LDK43	WLCA2-55LDK43-N
WLD2-LDK13	WLD28-LDK13-N
WLD2-55LDK13	WLD28-55LDK13-N
WLD2-LDK43	WLD28-LDK43-N
WLD2-55LDK43	WLD28-55LDK43-N
WLH2-LDK13	WLCA2-LDK13-N
WLH2-55LDK13	WLCA2-55LDK13-N
WLH2-LDK43	WLCA2-LDK43-N
WLH2-55LDK43	WLCA2-55LDK43-N
WLCA2-55LD-M1J	WLCA2-55LD-M1J-N
WLCA2-LD-M1GJ	WLCA2-LD-M1GJ-N
WLCA2-55LD-M1GJ	WLCA2-55LD-M1GJ-N
WLCA2-55LD-M1JB	WLCA2-55LD-M1JB-N
WLCA2-LD-DGJ03	WLCA2-LD-DGJ-N
WLCA2-55LD-DGJ03	WLCA2-55LD-DGJ-N
WLCA2-LD-DK1EJ03	WLCA2-LD-DK1EJ-N
WLCA2-55LD-DK1EJ03	WLCA2-55LD-DK1EJ-N
WLD2-LD-M1J	WLD28-LD-M1J-N
WLD2-55LD-M1J	WLD28-55LD-M1J-N
WLD2-LD-M1GJ	WLD28-LD-M1GJ-N
WLD2-55LD-M1GJ	WLD28-55LD-M1GJ-N
WLD2-55LD-M1JB	WLD28-55LD-M1JB-N
WLD2-LD-DGJ03	WLD28-LD-DGJ-N
WLD2-LD-DK1EJ03	WLD28-LD-DK1EJ-N
WLD2-55LD-DK1EJ03	WLD28-55LD-DK1EJ-N
WLH2-LD-M1J	WLCA2-LD-M1J-N
WLH2-LD-M1GJ	WLCA2-LD-M1GJ-N
WLH2-LD-DGJ03	WLCA2-LD-DGJ-N
WLCA2-55	WLCA2-55-N
WLCA2-55LD	WLCA2-55LD-N

WL	WL-N
WLCA2-55LE	WLCA2-55LE-N
WLCA2-139	WLCA2-139-N
WLCA2-139LD2	WLCA2-139LD2-N
WLCA2-139LD3	WLCA2-139LD3-N
WLCA2-140	WLCA2-140-N
WLCA2-141	WLCA2-141-N
WLCA2-141LD2	WLCA2-141LD2-N
WLCA2-141LD3	WLCA2-141LD3-N
WLCA2-RP60	WLCA2-RP60-N
WLCA2-RP60LD2	WLCA2-RP60LD2-N
WLCA2-RP60LD3	WLCA2-RP60LD3-N
WLCA2-TH	WLCA2-TH-N
WLCA2-TC	WLCA2-TC-N
WLCA2-RP	WLCA2-RP-N
WLCA2-P1	WLCA2-P1-N
WLH2-55	WLCA2-55-N
WLH2-55LD	WLCA2-55-IN WLCA2-55LD-N
WLH2-55LE	WLCA2-55LD-N WLCA2-55LE-N
WLH2-139	WLCA2-139-N
WLH2-140	WLCA2-140-N
WLH2-141	WLCA2-141-N
WLH2-141LD3	WLCA2-141LD3-N
WLH2-RP60	WLCA2-RP60-N
WLH2-RP60LD3	WLCA2-RP60LD3-N
WLH2-TH	WLCA2-TH-N
WLH2-TC	WLCA2-TC-N
WLH2-RP	WLCA2-RP-N
WLH2-P1	WLCA2-P1-N
WLCA2-255	WLCA2-255-N
WLCA2-255LD	WLCA2-255LD-N
WLCA2-255LE	WLCA2-255LE-N
WLCA2-2139	WLCA2-2139-N
WLCA2-2139LD2	WLCA2-2139LD2-N
WLCA2-2139LD3	WLCA2-2139LD3-N
WLCA2-2RP60	WLCA2-2RP60-N
WLCA2-2RP60LD2	WLCA2-2RP60LD2-N
WLCA2-2RP60LD3	WLCA2-2RP60LD3-N
WLCA2-2TH	WLCA2-2TH-N
WLCA2-2TC	WLCA2-2TC-N
WLCA2-2N55	WLCA2-2N55-N
WLCA2-2N55LD	WLCA2-2N55LD-N
WLCA2-2N55LE	WLCA2-2N55LE-N
WLCA2-2N139	WLCA2-2N139-N
WLCA2-2N140	WLCA2-2N140-N
WLCA2-2NTH	WLCA2-2NTH-N
WLCA2-2NTC	WLCA2-2NTC-N
WLCA12-55	WLCA12-55-N
WLCA12-55LD	WLCA12-55LD-N
WLCA12-55LE	WLCA12-55LE-N
WLCA12-139	WLCA12-139-N
WLCA12-140	WLCA12-140-N
WLCA12-141	WLCA12-141-N
	1

WL	WL-N
WLCA12-RP60	WLCA12-RP60-N
WLCA12-TH	WLCA12-TH-N
WLCA12-TC	WLCA12-TC-N
WLCA12-RP	WLCA12-RP-N
WLCA12-P1	WLCA12-P1-N
WLH12-TH	WLCA12-TH-N
WLH12-TC	WLCA12-TC-N
WLH12-RP	WLCA12-RP-N
WLH12-P1	WLCA12-P1-N
WLCA12-2TH	WLCA12-2TH-N
WLCA12-2TC	WLCA12-2TC-N
WLCA12-2NTH	WLCA12-2NTH-N
WLCA12-2NTC	WLCA12-2NTC-N
WLCL-55	WLCL-55-N
WLCL-55LD	WLCL-55LD-N
WLCL-139	WLCL-139-N
WLCL-140	WLCL-140-N
WLCL-RP60	WLCL-RP60-N
WLCL-TH	WLCL-TH-N
WLCL-TC	WLCL-TC-N
WLCL-RP	WLCL-RP-N
WLCL-P1	WLCL-P1-N
WLHL-TH	WLCL-2NTH-N
WLHL-TC	WLCL-2NTC-N
WLHL-RP	WLCL-2NRP-N
WLHL-P1	WLCL-2NP1-N
WLGL-TH	WLGL-TH-N
WLCL-2TH	WLCL-2TH-N
WLCL-2TC	WLCL-2TC-N
WLCL-2RP	WLCL-2RP-N
WLCL-2NTH	WLCL-2NTH-N
	WLCL-2NTA-N WLCL-2NTC-N
WLCL-2NTC	
WLD2-55	WLD28-55-N WLD28-55LD-N
WLD2-55LD	
WLD2-55LE	WLD28-55LE-N
WLD2-139	WLD28-139-N
WLD2-RP60	WLD28-RP60-N
WLD2-TH	WLD28-TH-N
WLD2-TC	WLD28-TC-N
WLD2-RP	WLD28-RP-N
WLD28-55	WLD28-55-N
WLD28-55LD	WLD28-55LD-N
WLD28-55LE	WLD28-55LE-N
WLD28-139	WLD28-139-N
WLD28-140	WLD28-140-N
WLD28-RP60	WLD28-RP60-N
WLD28-TH	WLD28-TH-N
WLD28-RP	WLD28-RP-N
WLSD-55	WLSD-55-N
WLSD-55LD	WLSD-55LD-N
WLSD-139	WLSD-139-N
WLSD-RP60	WLSD-RP60-N

WL	WL-N
WLSD-TH	WLSD-TH-N
WLSD-TC	WLSD-TC-N
WLSD-RP	WLSD-RP-N
WLSD2-55	WLSD2-55-N
WLSD2-55LD	WLSD2-55LD-N
WLSD2-139	WLSD2-139-N
WLSD2-140	WLSD2-140-N
WLSD2-RP60	WLSD2-RP60-N
WLSD2-TH	WLSD2-TH-N
WLSD2-TC	WLSD2-TC-N
WLSD2-RP	WLSD2-RP-N
WLNJ-55	WLNJ-55-N
WLNJ-55LD	WLNJ-55LD-N
WLNJ-139	WLNJ-139-N
WLNJ-140	WLNJ-140-N
WLNJ-RP60	WLNJ-RP60-N
WLNJ-TH	WLNJ-TH-N
WLNJ-TC	WLNJ-TC-N
WLNJ-RP	WLNJ-RP-N
WLNJ-255	WLNJ-255-N
WLNJ-255LD	WLNJ-255LD-N
WLNJ-2140	WLNJ-2140-N
WLNJ-2RP60	WLNJ-2RP60-N
WLNJ-2RP	WLNJ-2RP-N
WLCA2-LEAS	WLCA2-LEAS-N
WLH2-LEAS	WLCA2-LEAS-N
WLCA2-LDAS	WLCA2-LDAS-N
WLH2-LDAS	WLCA2-LDAS-N
WLCA2-LES	WLCA2-LES-N
WLH2-LES	WLCA2-LES-N
WLCA2-LDS	WLCA2-LDS-N
WLH2-LDS	WLCA2-LDS-N
WLD28-LES	WLD28-LES-N
WLD28-LDS	WLD28-LDS-N
WLMCA2-LD	WLMCA2-LD-N
WLMCA2-LDK13A	WLMCA2-LDK13A-N
WLMCA2-LDK13	WLMCA2-LDK13-N
WLMCA2-LDK43A	WLMCA2-LDK43A-N
WLMCA2-LDK43	WLMCA2-LDK43-N
WLMCA2-LD-M1J	WLMCA2-LD-M1J-N
WLMCA2-LD-DGJ03	WLMCA2-LD-DGJ-N
WLMH2-LD	WLMCA2-LD-N
WLMH2-LDK13A	WLMCA2-LDK13A-N
WLMH2-LDK13	WLMCA2-LDK13-N
WLMH2-LDK43A	WLMCA2-LDK43A-N
WLMH2-LDK43	WLMCA2-LDK43-N
WLMH2-LD-M1J	WLMCA2-LD-M1J-N
WLMH2-LD-DGJ03	WLMCA2-LD-DGJ-N
WLRCA2	WLRCA2-N
WLRH2	WLRCA2-N
WLRCA2-2	WLRCA2-2-N
WLRCA2-2N	WLRCA2-2N-N
•	

WL	WL-N
WLRCA2	WLRCA2-N
WLRH2	WLRCA2-N
WLRCA2-2	WLRCA2-2-N
WLRCA2-2N	WLRCA2-2N-N
WLRCL	WLRCA2-N
WLRCA2-2	WLRCA2-2-N
WLRCA2-2N	WLRCA2-2N-N
WLRCA32	WLRCA32-N
WLRCA2-LDS	WLRCA2-LDS-N
WLRH2-LES	WLRCA2-LES-N
WLRH2-LDS	WLRCA2-LDS-N

Model Replacement Table (Replacing WL-N High-sensitivity and High-precision Models with WL High-sensitivity and High-precision Models)

The WL-N high-sensitivity and high-precision models have been integrated into the WL Series. To use a WL-N high-sensitivity or high-precision model, find the corresponding WL high-sensitivity or high-precision model in the following model replacement table, and order the switch with the WL model number. Refer to the WL catalog for detailed information on WL high-sensitivity and high-precision models.

WL-N	WL
	WL01G2-TH-F
WLG2-TH-N	WLG2-TH-F
	WLG2-TH
14/1 OO N	WL01G2
WLG2-N	WLG2
	WL01G2-LDS
WLG2-LDS-N	WLG2-LDS
	WL01G2-LD
WLG2-LD-N	WLG2-LD
	WL01G2-LD-M1J
WLG2-LD-M1J-N	WLG2-LD-M1J
WLG2-LD-M1JB-N	WLG2-LD-M1JB 0.3M
WLG2-LD-M1GJ-N	WLG2-LD-M1GJ 0.3N
	WL01G2-LD-DGJ03
WLG2-LD-DGJ-N	WLG2-LD-DGJ03
	WL01G12-TH
WLG12-TH-N	WLG12-TH
	WL01G12
WLG12-N	WLG12
	WLG12 WLR01G2
WLRG2-N	WLRG2
WI DOO I DO N	
WLRG2-LDS-N	WLRG2-LDS
WLMGCA2-LD-N	WLMGCA2-LD
WLMGCA2-LD-M1J-N	WLMGCA2-LD-M1J
WLMGCA2-LDK43-N	WLMGCA2-LDK43
WLMGCA2-LDK13-N	WLMGCA2-LDK13
WLMGCA2-LDK13A-N	WLMGCA2-LDK13A
WLMG2-LD-N	WLMG2-LD
WLMG2-LD-M1J-N	WLMG2-LD-M1J
WLMG2-LDK43-N	WLMG2-LDK43
WLMG2-LDK13-N	WLMG2-LDK13
WLMG2-LDK13A-N	WLMG2-LDK13A
WLMG2-LD-DGJ-N	WLMG2-LD-DGJ03
WLGL-TH-N	WLGL-TH
WLGL-TC-N	WLGL-TC
WLGL-P1-N	WLGL-P1
WLGL-N	WL01GL
TIEGE IV	WLGL
WLGL-LE-N	WLGL-LE
WLGL-LD-N	WLGL-LD
	WL01GCA2-TH
WLGCA2-TH-N	WLGCA2-2TH
	WLGCA2-TH
WLGCA2-TC-N	WLGCA2-TC
WLGCA2-RP-N	WLGCA2-RP
WLGCA2-RP60-N 5M	WLGCA2-RP60
WLGCA2-RP60LD3-N 5M	WLGCA2-RP60LD3
WLGCA2-RP60LD2-N 5M	WLGCA2-RP60LD2
N## 00 40 A:	WL01GCA2
WLGCA2-N	

WL-N	WL
WLGCA2-LES-N	WLGCA2-LES
	WL01GCA2-LE
WLGCA2-LE-N	WLGCA2-LE
WLGCA2-LDS-N	WLGCA2-LDS
WLGCA2-LDS-M1J-1-N	WLGCA2-LDS-M1J-1
WLGCA2-LDS-M1GJ-1-N	WLGCA2-LDS-M1GJ-1
	WL01GCA2-LD
WLGCA2-LD-N	WLGCA2-LD
WLGCA2-LD-M1J-N	WLGCA2-LD-M1J
	WLGCA2-LD-M1GJ
WLGCA2-LD-M1GJ-N	0.3M
WLGCA2-LDK43-N	WL01GCA2-LDK43
NAII 00 40 1 DIK40 N	WLGCA2-LDK43
WLGCA2-LDK13-N	WLGCA2-LDK13
WLGCA2-LD-DGJ-N	WLGCA2-LD-DGJ03
WLGCA2-55-N	WLGCA2-55
WLGCA2-55LE-N	WLGCA2-55LE
WLGCA2-55LD-N	WL01GCA2-55LD
	WLGCA2-55LD
WLGCA2-55LD-M1J-N	WLGCA2-55LD-M1J 0.3M
WLGCA2-55LD-M1JB-N	WLGCA2-55LD-M1JB 0.3M
WLGCA2-55LD-M1GJ-N	WLGCA2-55LD-M1GJ 0.3M
	WL01GCA2-55LDK43
WLGCA2-55LDK43-N	WLGCA2-55LDK43
	WL01GCA2-55LDK13
WLGCA2-55LDK13-N	WLGCA2-55LDK13
	WLGCA2-55LDK13CE
WLGCA2-55LD-DGJ-N	WLGCA2-55LD-DGJ03
WLGCA2-139-N 5M	WLGCA2-139 5M
WLGCA2-139-N 3M	WLGCA2-139 3M
WLGCA2-139-N 2M	WLGCA2-139 2M
WLGCA2- 139LD3-N 5M	WLGCA2- 1395LD3 S-FLEX 5M
WLGCA2-139LD3-N 5M	WLGCA2-139LD3 5M
WLGCA2-139LD2-N 5M	WLGCA2-139LD2 5M
WLG2-TC-N	WLG2-TC
WLG2-RP-N	WLG2-RP
WLG2-RP60-N 5M	WLG2-RP60
WLG2-RP60-N 10M	WLG2-RP60 10M
WLG2-RP60LD3-N 5M	WLG2-RP60LD3
WLG2-RP60LD2-N 5M	WLG2-RP60LD2
WLG2-P1-N	WLG2-P1
WLG2-LES-N	WLG2-LES
WLG2-LE-N	WL01G2-LE WLG2-LE
WLG2-LEAS-N	WLG2-LEAS
WLG2-LDK43-N	WLG2-LDK43
WLG2-LDK43-N	WL01G2-LDK13
	WLG2-LDK13
WLG2-LD-DK1EJ-N	WLG2-LD-DK1EJ03
WLG2-LDAS-N	WLG2-LDAS
WEGE-LDAG-IN	**LUZ-LDAG

WL-N	WL
WI 00 55 N	WL01G2-55
WLG2-55-N	WLG2-55
WLG2-55LE-N	WLG2-55LE
MI OO EEL D. N.	WL01G2-55LD
WLG2-55LD-N	WLG2-55LD
WLG2-55LD-M1TJ-N	WLG2-55LD-M1TJ
WLG2-55LD-M1TJB-N	WLG2-55LD-M1TJB
WLG2-55LD-M1JB-N	WLG2-55LD-M1JB
WLG2-55LD-M1GJ-N	WLG2-55LD-M1GJ 0.3M
MI CO EEL DIZAG N	WL01G2-55LDK43
WLG2-55LDK43-N	WLG2-55LDK43
	WL01G2-55LDK13
WLG2-55LDK13-N	WLG2-55LDK13
	WLG2-55LDK13CE
WLG2-55LD-DTK1EJ-N	WLG2-55LD-DTK1EJ03
WLG2-55LD-DK1EJ-N	WLG2-55LD-DK1EJ03
WI 00 551 D DO I N	WL01G2-55LD-DGJ03
WLG2-55LD-DGJ-N	WLG2-55LD-DGJ03
WLG2-141-N 5M	WLG2-141 5M
WLG2-141-N 2M	WLG2-141 2M
WI 00 4441 D0 N 5M	WL01G2-141LD3 5M
WLG2-141LD3-N 5M	WLG2-141LD3 5M
WLG2-141LD2-N 5M	WLG2-141LD2 5M
WLG2-140-N 5M	WLG2-140 5M
WLG2-139-N 5M	WLG2-139 5M
WLG2-139-N 3M	WLG2-139 3M
WLG2-139LD3-N 5M	WLG2-139LD3 5M
WLG12-TC-N	WLG12-TC
WLG12-P1-N	WLG12-P1
WLG12-LE-N	WLG12-LE
WLG12-LD-N	WLG12-LD
WL-2H4100-N (FOR WLGL-N)	
WL-2H2100-N (FOR WLG12-N)	
WL-2H1100W-N (FOR WLG2-141-N)	
WL-2H1100S-N (FOR WLG2-S-N)	
WL-2H1100-N (FOR WLG2-N)	

Safety Precautions

Refer to Safety Precautions for All Limit Switches.

Precautions for Safe 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 IEC60269, either a gl 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.

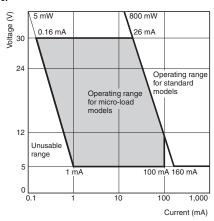


- Constantly subjecting a Switch to vibration or shock can result in wear, which can lead to contact interference with contacts, operation failure, reduced durability, and other problems.
 Excessive vibration or shock can lead to false contact operation or damage. Install Switches in locations not subject 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 (SiO₂) 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.

Using Switches for Micro Loads

Contact faults may occur if a Switch for a general-load is used to switch a micro load circuit. Use switches in the ranges shown in the diagram below. However, even when using micro load models within the operating range shown here, if inrush current occurs when the contact is opened or closed, it may increase contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary. The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% ($\lambda 60$).

The equation, $\lambda_{60} = 0.5 \times 10^{-6}$ /operations indicates that the estimated malfunction rate is less than 1/2,000,000 operations with a reliability level of 60%.

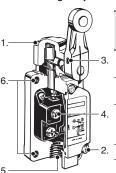


Built-in Switch

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.	Туре	Appropriate tightening 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

Installing the Switch

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

Mounting

WL		Mounting locations
Front Mountig/ Rear Mountig	Front Mountig : Four, $5.2^{+0.2}_{-0.2}$ dia. holes or M5 tapped holes Rear Mountig : Four, $6.2^{+0.2}_{-0.2}$ dia. holes 58.7 ±0.15 30.2 ±0.15	
In case of side mounting for overtravel,90° WL□-□□2N		Mounting locations
Side Mountig	Two, 5.2 ^{+0.2} dia. holes 64 ±0.15 23 ±0.15	

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. Refer to *Limit Switch Connectors* for details on SC Connectors.

Wiring

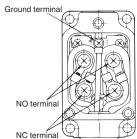
D dia.

 Use 1.25-mm² lead wires and M4-insulation covered crimp terminals for wiring.

Crimp Terminal External Dimensions

sensions Switch Box Section Ground terminal

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



Wiring Method

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

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

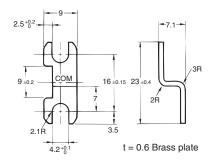
All rotating lever models, except the fork lever lock models, have a set position marker plate. (See page 23.) After operation, set the indicator needle on the marker plate so that is in the convex section of the bearing.

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-



Indicator

Indicator-equipped switch has contacts and indicator in parallel. When contacts are open, leakage current flows through the indicator circuit and may cause load's malfunction.

Please check the load's OFF current before use the indicatorequipped switch.

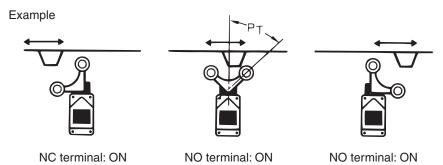
Using the Switches

Item **Applicable models and Actuators** Details **Changing the Installation Position** Roller Levers: of the Actuator WLCA2, WL01CA2, WLCA2-2, WL01CA2-2, WLH2, WL01H2, WLG2, By loosening the Allen-head bolt on the Loosen the M5 12 bolt, set actuator lever, the position of the actua-WL01G2, WLMCA2□, WLMH2□, the actuator's position and then WLMG2□, WLMGCA2□ tor can be set anywhere within the 360°. tighten the bolt again. Adjustable Roller Levers: With Indicator-equipped Switches, the WLCA12, WL01CA12, WLCA12-2, actuator lever comes in contact with the WL01CA12-2, WLH12, WL01H12, top of the indicator cover, so use caution when rotating and setting the lever. WLG12, WL01G12, Adjustable Rod Levers: When the lever only moves forwards and backwards, it will not contact the lamp WLCL, WL01CL, WLCL-2, WL01CL-2, WLHL, WL01HL, WLGL, WL01GL cover (except for long-life models). Roller Levers: Changing the Orientation of the Head WLCA□, WL01CA□, WLCA□-2, By removing the screws in the four cor-WL01CA -2, WLGCA , WLH , ners of the Head, the Head can be set Head WL01H□, WLG□, WL01G□, Loosen the screws in any of the four directions. Be sure to WLMCA2 \square , WLMH2 \square , WLMG2 \square , change the plunger for internal operaoosen the screws. WLMGCA2 tions at the same time. (The operation-Adjustable Rod Levers: al plunger does not need to be WLCL, WL01CL, WLCL-2, WL01CL-2 14 [1 changed on general-purpose and high-Horizontal Plungers: sensitivity overtravel models.) The roll-WLSD□, WL01ŠD□ er plunger can be set in either two po-Top-roller Plungers: sitions at 90°. WLD2, WL01D2 WLCA2-2N and WL01CA2-2N can be Sealed Top-roller Plungers: set only in either the forward or back-WLD28, WL01D28 ward direction. Does not include -RP60 Series or -141 One-side Operation for General-purpose and High-precision Switches The output of the Switch will be The output of the Switch will changed, regardless of which only be changed when the lever direction the lever is pushed. is pushed in one direction. Operating Operating Operating Operating Operating Operational plunger Operation in both Clockwise operation Counterclockwise operation **Changing the Operating Direction** Cam Direction Changing Procedure for Overtravel, 90° Operation Switches By removing the Head on models Loosen the cam holder with a Change the direction of the cam as coin or screwdriver. Take out required by your intended operation which can operate on one-side only, Roller Levers: and then reinstall the cam and then changing the direction of the the cam from the Switch WLCA2, WL01CA2, WLGCA2, operational plunger, one of three oper-WI MGCA2 ating directions can be selected. For Adjustable Roller Levers: overtravel 90° operation models, one WLCA12, WL01CA12 of three operating directions can be se-Adjustable Rod Levers: lected by loosening the rubber holder WĹCL, WL01CL using either a coin or a flat-blade Overtravel Models: screwdriver and changing the direction WLCA□-2N, WL01CA□-2N of the internal rubber section. The tightening torque for the screws on the Head is 0.78 to 0.88 N•m. Relationship of cam to operation as observed from the rear of Switch Operation on both sides Operation on one side Operates Operates Operates Does not operate Operation on one side Avoid this combination Does not operate

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 , WL- CA -2, WL01CA -2, WLMG2 , WLMGCA2 , WLG , except for the adjustable roller levers. Fork Lever Locks: WLCA32-4 , WL01CA32-4	Loosen the Allen-head bolt.
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□	WLCA32-41 WLCA32-42 WLCA32-44 WLCA32-44 WLCA32-44 WLCA32-44 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.	WLCA12 etc. Adjustment range radius: Loosen this Allen-head bolt and adjust the length of the lever. Loosen this Allen-head bolt and adjust the length of the lever.

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.



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