

Two-circuit Limit Switches

WL-N/WLG

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

**WL-N/Basic models,
WLG/High-sensitivity and
High-precision models**

- Wide variety of head shapes, including Roller Lever, Plunger, Flexible Rod, and Fork Lock Lever Switches (General-purpose Switches).
- You can select the optimum actuator shape for the workpiece shape and movement from a variety of actuators.
- In addition to general detection, we also have environment resistant models for harsh environments, sputter resistant models for welding processes, and long-life models for high-frequency use.
- Degree of Protection; IEC IP67

 Be sure to read *Safety Precautions* on pages 83 to 88 and *Safety Precautions for All Limit Switches*.



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

Two-circuit Limit Switch

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Common Features

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Model Number Structure

List of Models

Roller lever

Type of Switches	Operating environment	Code	Indicator	Wiring Specifications	Actuator	R38	R50	R63	Adjustable RollerLever (R25 to 89 mm)	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	---	Without operation indicator	Screw terminals	○*	○	○	○	○*	page 7
			With operation indicator		○*	○	○	○	○*	
			Neon lamp		○*	○	○	○	○*	
			With operation indicator	LED	Direct-wire connector	○*	---	---	---	
			With operation indicator	LED	Pre-wired Connector	○*	---	---	---	
Environment-resistant Switches	Ambient operating temperature (5 to 120°C)	TH	Without operation indicator	Screw terminals	○	---	---	○	page 35	
	Ambient operating temperature (-40 to 40°C)	TC			○	---	---	○		
	Chemicals and oil	RP			○	---	---	○		
	Outdoors	P1			○	---	---	○		
	Coolant drops and mist	RP60		Direct-wire cable	○	---	---	○		
	Mist (Improved sealing for conduit opening and cover)	139 RP40			○	---	---	○		
	Constant water drops and mist (Molded conduit opening and cover.)	140			○	---	---	○		
	Constant water drops or splattering cutting powder (Preventing intrusion of cutting powder through molded conduit opening, cover, and head seal, and a head cap)	141 145			○	---	---	○		
	Spattering from welding	With operation indicator	LED	Screw terminals	○	---	---	---	page 53	
			Neon lamp		○	---	---	---		
			LED	Pre-wired connectors	○	---	---	---		
Long-life Switches	High-durability	With operation indicator	LED	Screw terminals	○	---	---	---	page 64	
			LED	Pre-wired connectors	○	---	---	---		

Note: ○ indicates features included in the ordered model.

Plunger Actuators

Type	Operating environment	Code	Indicator	Wiring Specifications	Actuator	Sealed top-roller plunger	Top-roller plunger	Sealed top plunger	Sealed top-ball plunger	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	---	Without operation indicator	Screw terminals	○*	○*	○	○	○	page 7
			With operation indicator		○*	○	○	○	○	
			With operation indicator		○*	○	○	○	○	
			With operation indicator		○*	---	---	---	---	
			With operation indicator	Pre-wired connectors	○*	---	---	---	---	
			Without operation indicator	Screw terminals	○	○	---	---	---	page 35
					○	---	---	---	---	
Environment-resistant Switches	Ambient operating temperature (5 to 120°C)	TH			○	---	---	---	---	
	Ambient operating temperature (-40 to 40°C)	TC			○	---	---	---	---	
	Chemicals and oil	RP			○	---	---	---	---	
	Outdoors	P1			---	---	---	---	---	
	Coolant drops and mist	RP60			○	---	---	---	---	
	Mist (Improved sealing for conduit opening and cover)	139 RP40			○	○	○	---	---	
	Constant water drops and mist (Molded conduit opening and cover.)	140			○	---	---	---	---	
Spatter-prevention Switches	Spattering from welding	141 145	With operation indicator	Screw terminals	○	○	---	---	---	page 53
					○	---	---	---	---	
					○	---	---	---	---	

Type	Operating environment	Code	Indicator	Wiring Specifications	Actuator	Horizontal plunger	Horizontal-roller plunger	Horizontal-ball plunger	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	---	Without operation indicator	Screw terminals	○*	○*	○	○	page 7
			With operation indicator		○	○	○	○	
			With operation indicator		○	○	○	○	
			With operation indicator		---	---	---	---	
			With operation indicator	Pre-wired connectors	---	---	---	---	
			Without operation indicator	Screw terminals	○	○	---	---	page 35
					○	○	---	---	
Environment-resistant Switches	Ambient operating temperature (5 to 120°C)	TH			○	○	---	---	
	Ambient operating temperature (-40 to 40°C)	TC			○	○	---	---	
	Chemicals and oil	RP			○	○	---	---	
	Outdoors	P1			---	---	---	---	
	Coolant drops and mist	RP60			○	○	---	---	
	Mist (Improved sealing for conduit opening and cover)	139 RP40			○	---	---	---	
	Constant water drops and mist (Molded conduit opening and cover.)	140			---	---	○	---	
Spatter-prevention Switches	Spattering from welding	141 145	With operation indicator	Screw terminals	---	---	---	---	page 53
					---	---	---	---	
					---	---	---	---	

Note: ○ indicates features included in the ordered model.

Flexible Rod Actuators

Type	Operating environment	Code	Indicator	Wiring Specifications	Actuator	Adjustable rod lever (25 to 140 mm)	Adjustable rod lever (350 to 380 mm)	Rod spring lever	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	---	Without operation indicator	Screw terminals	○*	○	○	○	page 7
			With operation indicator		○	---	---	---	
			Neon lamp		---	---	---	---	
			With operation indicator	LED	Direct-wire connector	○	○	○	
Environment-resistant Switches	Ambient operating temperature (5 to 120°C) Ambient operating temperature (-40 to 40°C) Chemicals and oil Outdoors Coolant drops and mist Mist (Improved sealing for conduit opening and cover) Constant water drops and mist (Molded conduit opening and cover.)	TH TC RP P1 RP60 139 RP40 140	Without operation indicator	Screw terminals	○	---	---	---	page 35
					○	---	---	---	
					○	---	---	---	
					○	---	---	---	
			Direct-wire cable	Screw terminals	○	---	---	---	
					○	---	---	---	
					○	---	---	---	
					○	---	---	---	

Type	Operating environment	Code	Indicator	Wiring Specifications	Actuator	Coil spring (6.5 dia.)	Coil spring (4.8 dia.)	Resin rod (8 dia.)	Steel wire (1 dia.)	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	---	Without operation indicator	Screw terminals	○*	○	○*	○	○	page 7
			With operation indicator		○*	○	○*	○	○	
			Neon lamp		○*	○	○*	○	○	
			With operation indicator	LED	Direct-wire connector	---	---	---	---	
Environment-resistant Switches	Ambient operating temperature (5 to 120°C) Ambient operating temperature (-40 to 40°C) Chemicals and oil Outdoors Coolant drops and mist Mist (Improved sealing for conduit opening and cover) Constant water drops and mist (Molded conduit opening and cover.)	TH TC RP P1 RP60 139 RP40 140	Without operation indicator	Screw terminals	○	---	---	---	---	page 35
					○	---	---	---	---	
					○	---	○	---	---	
					---	---	---	---	---	
			Direct-wire cable	Screw terminals	○	---	○	---	---	
					○	---	○	---	---	
					○	---	○	---	---	
					○	---	○	---	---	

Note: ○ indicates features included in the ordered model.

Fork Lock Lever Actuators

Type	Operating environment	Indicator	Wiring Specifications	Actuator	Fork Lock Lever A	Fork Lock Lever B	Fork Lock Lever C	Fork Lock Lever D	Page
General-purpose Switches	Ambient operating temperature (-10 to 80°C)	Without operation indicator	Screw terminals	○	○	○	○	○	page 7
				○	---	○	○	---	
				○	○	○	○	---	
		With operation indicator	LED	Direct-wire connector	---	---	---	---	
		With operation indicator	LED	Pre-wired connectors	---	---	---	---	

Note: ○ indicates features included in the ordered model.

Safety Standards (Common)

Approved Standards

Agency	Standard	File No.	Approved models
UL	UL508	Contact your OMRON representative for information	Contact your OMRON representative for information
CSA cUL	CSA C22.2 No.14		
TÜV Rheinland	EN60947-5-1		
CCC (CQC)	GB/T14048.5		

Approved Standard Ratings

UL/cUL, CSA (UL508, CSA C22.2 No.14)

Specifications			Approved Standards
Operation Indicator	Sensor I/O connectors	Item	
No indicator	No connector	Basic models	A600 1 A, 125 VDC
		High-sensitivity and High-precision models	B600 0.5 A, 125 VDC
	Pre-wired connector (AC)	Basic, High-sensitivity or High-precision models	C300 3 A, 250 VAC
		Basic models	1 A, 125 VDC
	Pre-wired connector (DC) Direct-wire connector (DC)	High-sensitivity and High-precision models	0.5 A, 125 VDC
		Basic models	A300 10 A, 250 VAC
Neon lamp	No connector	High-sensitivity and High-precision models	B300 0.5 A, 250 VAC
		Basic, High-sensitivity or High-precision models	C300 3 A, 250 VAC
	Pre-wired connector (AC)	Basic models	A150 10 A, 115 VAC 1 A, 115 VDC
LED	No connector	High-sensitivity and High-precision models	B150 5 A, 115 VAC 0.5 A, 115 VDC
		Basic, High-sensitivity or High-precision models	C150 3 A, 115 VAC
	Pre-wired connector (DC) Direct-wire connector (DC)	Basic models	1 A, 115 VDC
		High-sensitivity and High-precision models	0.5 A, 115 VDC

A600 Authentication conditions

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

C300 Authentication conditions

Rated voltage	Carrying current	Current (A)		Volt-ampere (VA)	
		Make	Break	Make	Break
120 VAC	2.5 A	15	1.5	1,800	180
240 VAC		7.5	0.75		

A300 Authentication conditions

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

A150 Authentication conditions

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

C150 Authentication conditions

Rated voltage	Carrying current	Current (A)		Volt-ampere (VA)	
		Make	Break	Make	Break
120 VAC	2.5 A	15	1.5	1,800	180
240 VAC		7.5	0.75		

B600 Authentication conditions

Rated voltage	Carrying current	Current (A)		Volt-ampere (VA)	
		Make	Break	Make	Break
120 VAC	5 A	30	3	3,600	360
240 VAC		15	1.5		
480 VAC		7.5	0.75		
600 VAC		6	0.6		

B300 Authentication conditions

Rated voltage	Carrying current	Current (A)		Volt-ampere (VA)	
		Make	Break	Make	Break
120 VAC	5 A	30	3	3,600	360
240 VAC		15	1.5		

B150 Authentication conditions

Rated voltage	Carrying current	Current (A)		Volt-ampere (VA)	
		Make	Break	Make	Break
120 VAC	5 A	30	3	3,600	360
240 VAC		15	1.5		

TÜV (EN 60947-5-1)

Authentication conditions	Specifications				
	Direct-wire cable type			With Pre-wired DC connector model	
	No indicator	Neon lamp	LED		
Working load category	AC-15	DC-12	AC-15	AC-15	DC-12
Rated working voltage (Ue)	250 V	48 V	250 V	115 V	48 V
Rated working current (Ie)				2 A	
Conditional short-circuit current				100 A	
Short-circuit protective device (SCPD)				10 A, fuse type gG	
Rated insulation voltage (Ui)				250 V	
Rated impulse dielectric strength (Uimp)				4 kV	
Pollution degree				3	
Protection against electric shock				Class I	
				Class III	

CCC (GB/T14048.5)

Authentication conditions	Specifications					
	No indicator	Neon lamp	LED	With Pre-wired DC connector model	With Pre-wired AC connector model	
Working load category	AC-15	DC-13	AC-15	AC-15	DC-13	AC-15
Rated working voltage (Ue)	250 V	48 V	250 V	250 V	48 V	250 V
Rated working current (Ie)				2 A		
Conditional short-circuit current				1000 A		
Short-circuit protective device (SCPD)				10 A, fuse type gG		
Rated insulation voltage (Ui)				250 V		

MEMO

General-purpose Switches

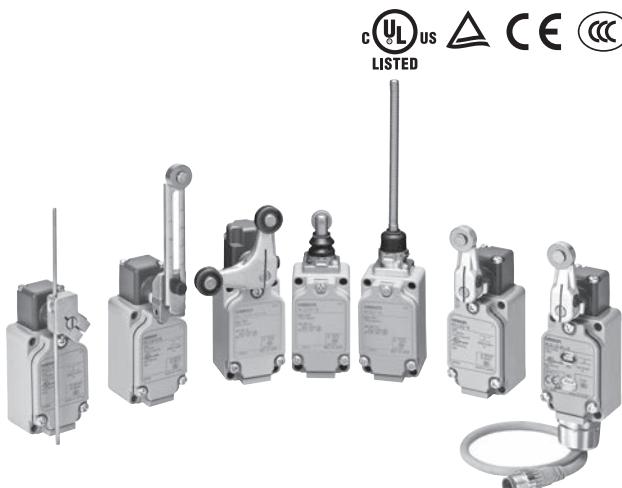
WL-N/WLG

Wide variety of head shapes to match the operating environment and application

- Wide variety of head shapes, including Roller Lever, Plunger, Flexible Rod, and Fork Lock Lever Switches.
- Wide variety of head shapes for fork lock lever
- You can select the optimum actuator shape for the workpiece shape and movement from a variety of actuators. Enables selection of optimum shape
- Degree of Protection; IEC IP67
- Operation indicators (LED/neon lamps) for enabling simple daily inspection are available
- In addition to regular screw terminals, direct-wire and pre-wired connectors are also available based on the wiring specifications



Be sure to read *Safety Precautions* on pages 83 to 88 and *Safety Precautions for All Limit Switches*.



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

Features

A type with operation indicators for easily confirming operation is available

Indicates the operation status of the switches using LEDs and neon lamps.

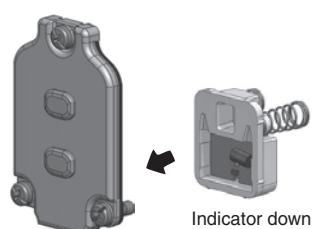


The light-ON when operating status and the light-ON when not operating status can be easily switched by turning the lamp holder 180°.

Light-ON when Operating



Light-ON when Not Operating



Selectable based on wiring specifications



Screw terminals



Direct-wire connector



Pre-wired connector

Pre-wired connectors include Smartclick products that turn by only 1/8-turn when attaching and removing. This reduces the labor required for connections and maintenance.



Smartclick

Smartclick is a trademark or registered trademark of OMRON Corporation in Japan and other countries.

Model Number Structure

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

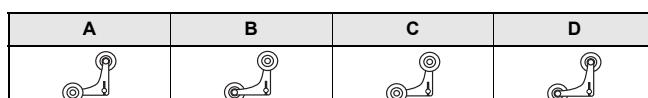
Basic models

WL□ - □ □ □ □ -N
 (1) (2) (3) (4) (5)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
CA2	Roller Lever	Roller lever: R38 mm	15±5°
CA2-2			25±5°
CA2-2N			20° max.
CA2-7		Roller lever: R50 mm	15±5°
CA2-8		Roller lever: R63 mm	15±5°
CA12		Adjustable roller lever (R25 to 89 mm)	15±5°
CA12-2			25±5°
CA12-2N			20° max.
D28	Plunger Actuators	Sealed top-roller plunger	1.7 mm max.
D2		Top-roller plunger	1.7 mm max.
D18		Sealed top plunger	1.7 mm max.
D38		Sealed top-ball plunger	1.7 mm max.
SD		Horizontal plunger	2.8 mm max.
SD2		Horizontal-roller plunger	2.8 mm max.
SD3		Horizontal-ball plunger	2.8 mm max.
CL	Flexible Rod Actuators	Adjustable Rod Lever (25 to 140 mm)	15±5°
CL-2			25±5°
CL-2N			20° max.
CAL4		Adjustable Rod Lever (350 to 380 mm)	15±5°
CAL5		Rod spring lever	15±5°
NJ		Coil spring (6.5 dia.)	20±10 mm
NJ-30		Coil spring (4.8 dia.)	20±10 mm
NJ-2		Flexible rod: Resin rod (8 dia.)	40±20 mm
NJ-S2		Flexible rod: Steel wire (1 dia.)	40±20 mm
CA32-41	Fork Lock Lever *	A	55° max.
CA32-42		B	55° max.
CA32-43		C	55° max.
CA32-44		D	55° max.

* The lever attachment method varies in A to D.



(2) Built-in Switch Specifications

Code	Specifications
None	Standard
55	Airtight built-in switch

(3) Conduit Size, Ground Terminal Specifications

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

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

(4) Indicator Specifications

Code	Specifications
None	No indicator
LD	LED (10 to 115 VAC/DC)
LE	Neon lamp (125 to 250 VAC)

(5) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G1/2)	---	---	---	---
K13A	Direct-wire connector type	Threaded (M12)	AC	NO only	NO: ③ ④
K13			DC	NO only	NO: ③ ④
K43A			AC	NC+NO	NO: ③ ④ NC: ① ②
K43			DC	NC+NO	NO: ③ ④ NC: ① ②
-M1J	Pre-wired connector *	Threaded (M12)	NO only	NO: ③ ④	NO: ③ ④
-M1GJ			NO only	NO: ① ④	NO: ① ④
-M1JB			NC only	NC: ③ ②	NC: ③ ②
-DGJ			NC+NO	NO: ③ ④ NC: ① ②	NO: ③ ④ NC: ① ②
-DK1EJ			NO only	NO: ③ ④ NC: ②	NO: ③ ④ NC: ②
-DTGJ	Pre-wired connector *	Smartclick	NC+NO	NO: ③ ④ NC: ① ②	NO: ③ ④ NC: ① ②
-DTK1EJ			NO only	NO: ③ ④ NC: ②	NO: ③ ④ NC: ②

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

High-sensitivity and High-precision Models

WLG

(1) (2) (3) (4) (5)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
2	Roller lever	Roller lever: R38 mm High-sensitivity Models	10° ^{+2°} _{-1°}
CA2	Roller lever	Roller lever: R38 mm High-precision Models	5° ^{+2°} _{0°}
12	Roller lever	Adjustable roller lever (R25 to 89 mm) High-sensitivity Models	10° ^{+2°} _{-1°}
L	Flexible rod	Adjustable Rod Lever (25 to 140 mm) High-sensitivity Models	10° ^{+2°} _{-1°}

(2) Built-in Switch Specifications

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

(3) Conduit Size, Ground Terminal Specifications

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

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

(4) Indicator Specifications

Code	Specifications
None	No indicator
LE	Neon lamp (125 to 250 VAC) *
LD	LED (10 to 115 VAC/DC)

* (5)Wiring Specifications: Screw terminals only

(5) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G½)	---	---	---	---
K13	Direct-wire connector type	Threaded (M12)	DC	NO only	NO: (3) (4)
K43				NC+NO	NO: (3) (4) NC: (1) (2)
-M1J	Pre-wired connector type *	Threaded (M12)	DC	NO only	NO: (3) (4)
-M1GJ				NO only	NO: (1) (4)
-M1JB				NC only	NC: (3) (2)
-DGJ03				NC+NO	NO: (3) (4) NC: (1) (2)
-DK1EJ03				NO only	NO: (3) (4) NC: (2)
-M1TJ	Pre-wired connectors type *	Smartclick	DC	NO only	NO: (3) (4)
-M1TGJ				NO only	NO: (1) (4)
-M1TJB				NC only	NC: (3) (2)
-DTGJ03				NC+NO	NO: (3) (4) NC: (1) (2)
-DTK1EJ03				NO only	NO: (3) (4) NC: (2)

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

Ordering Information

Roller Lever

Standard built-in switch

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator	With operation indicator *		
					LED	Neon lamp	
				Model	Model	Model	
	Roller lever: R38 mm		15±5°	WLCA2-N	WLCA2-LD-N	WLCA2-LE-N	
			25±5°	WLCA2-2-N	WLCA2-2LD-N	WLCA2-2LE-N	
			20° max.	WLCA2-2N-N	WLCA2-2NLD-N	WLCA2-2NLE-N	
			10° ⁺² ₋₁ °	WLG2	WLG2-LD	WLG2-LE	
	Roller lever: R50 mm		5° ⁺² ₀ °	WLGA2	WLGA2-LD	WLGA2-LE	
			15±5°	WLCA2-7-N	WLCA2-7LD-N	WLCA2-7LE-N	
			25±5°	---	---	---	
			20° max.	---	---	---	
	Roller lever: R63 mm		15±5°	WLCA2-8-N	WLCA2-8LD-N	WLCA2-8LE-N	
			25±5°	---	---	---	
			20° max.	---	---	---	
			15±5°	WLCA12-N	WLCA12-LD-N	WLCA12-LE-N	
	Adjustable roller lever (R25 to 89 mm)		25±5°	WLCA12-2-N	WLCA12-2LD-N	WLCA12-2LE-N	
			20° max.	WLCA12-2N-N	WLCA12-2NLD-N	WLCA12-2NLE-N	
			10° ⁺² ₋₁ °	WLG12	WLG12-LD	WLG12-LE	

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

Appearance	Actuator	Terminal shape	Pretravel (PT)	Connector shape	Voltage	Wiring locations	Connector pin No.	Model		
	Roller lever: R38 mm		15±5°		AC	NO only	NO: (3) (4)	WLCA2-LDK13A-N		
					DC	NO only	NO: (3) (4)	WLCA2-LDK13-N		
					AC	NC+NO	NO: (3) (4) NC: (1) (2)	WLCA2-LDK43A-N		
					DC	NC+NO	NO: (3) (4) NC: (1) (2)	WLCA2-LDK43-N		
			10° ⁺² ₋₁ °		NO only	NO: (3) (4)	WLG2-LDK13			
					NC+NO	NO: (3) (4) NC: (1) (2)	WLG2-LDK43			
			5° ⁺² ₀ °		NO only	NO: (3) (4)	WLGA2-LDK13			
					NC+NO	NO: (3) (4) NC: (1) (2)	WLGA2-LDK43			
	Roller lever: R38 mm		15±5°		DC	NO only	NO: (3) (4)	WLCA2-LD-M1J-N		
						NO only	NO: (3) (4)	WLCA2-LD-M1GJ-N		
						NC only	NC: (3) (2)	WLCA2-LD-M1JB-N		
						NC+NO	NO: (3) (4) NC: (1) (2)	WLCA2-LD-DGJ-N		
						NO only	NO: (3) (4) NC: (2)	WLCA2-LD-DK1EJ-N		
						NC+NO	NO: (3) (4) NC: (1) (2)	WLCA2-LD-DTGJ-N		
			10° ⁺² ₋₁ °		DC	NO only	NO: (3) (4) NC: (2)	WLCA2-LD-DTK1EJ-N		
						NO only	NO: (3) (4)	WLG2-LD-M1J		
						NO only	NO: (1) (4)	WLG2-LD-M1GJ		
						NC only	NC: (3) (2)	WLG2-LD-M1JB		
						NC+NO	NO: (3) (4) NC: (1) (2)	WLG2-LD-DGJ03		
						NO only	NO: (3) (4) NC: (2)	WLG2-LD-DK1EJ03		
			5° ⁺² ₀ °		DC	NO only	NO: (3) (4)	WLG2-LD-M1TJ		
						NO only	NO: (1) (4)	WLG2-LD-M1TGJ		
						NC only	NC: (3) (2)	WLG2-LD-M1TJB		
						NC+NO	NO: (3) (4) NC: (1) (2)	WLG2-LD-DTGJ03		
						NO only	NO: (3) (4) NC: (2)	WLG2-LD-DTK1EJ03		
						NO only	NO: (3) (4)	WLGA2-LD-M1J		
			Smartclick			NO only	NO: (1) (4)	WLGA2-LD-M1GJ		
						NC only	NC: (3) (2)	WLGA2-LD-M1JB		
						NC+NO	NO: (3) (4) NC: (1) (2)	WLGA2-LD-DGJ03		
						NO only	NO: (3) (4) NC: (2)	WLGA2-LD-DK1EJ03		

Note: 1. The photo shows a typical model.

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

Airtight Built-in Switch

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator	With operation indicator *	
					LED	Neon lamp
				Model	Model	Model
	Roller lever: R38 mm	Screw terminals (Conduit size: G $\frac{1}{2}$)	15 \pm 5°	WLCA2-55-N	WLCA2-55LD-N	WLCA2-55LE-N
			25 \pm 5°	WLCA2-255-N	WLCA2-255LD-N	WLCA2-255LE-N
			20° max.	WLCA2-2N55-N	WLCA2-2N55LD-N	WLCA2-2N55LE-N
			10° $^{+2}_{-1}$ °	WLG2-55	WLG2-55LD	WLG2-55LE
			5° $^{+2}_{-0}$ °	WLGA2-55	WLGA2-55LD	WLGA2-55LE
	Adjustable roller lever (R25 to 89 mm)	Screw terminals (Conduit size: G $\frac{1}{2}$)	15 \pm 5°	WLCA12-55-N	WLCA12-55LD-N	WLCA12-55LE-N
			25 \pm 5°	---	---	---
			20° max.	---	---	---
			10° $^{+2}_{-1}$ °	---	---	---

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

Appearance	Actuator	Terminal shape	Pretravel (PT)	Connector shape	Voltage	Wiring locations	Connector pin No.	Model
	Roller lever: R38 mm	Direct-wire connector	15 \pm 5°	Threaded (M12)	DC	NO only	NO: ③ ④	WLCA2-55LDK13-N
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLCA2-55LDK43-N
			5° $^{+2}_{-0}$ °			NO only	NO: ③ ④	WLG2-55LDK13
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLG2-55LDK43
			5° $^{+2}_{-0}$ °			NO only	NO: ③ ④	WLGA2-55LDK13
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLGA2-55LDK43
	Roller lever: R38 mm	Pre-wired connectors	15 \pm 5°	Threaded (M12)	DC	NO only	NO: ③ ④	WLCA2-55LD-M1J-N
			10° $^{+2}_{-1}$ °			NO only	NO: ① ④	WLCA2-55LD-M1GJ-N
			15 \pm 5°			NC only	NC: ③ ②	WLCA2-55LD-M1JB-N
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLCA2-55LD-DGJ-N
			15 \pm 5°			NO only	NO: ③ ④ NC: ②	WLCA2-55LD-DK1EJ-N
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLCA2-55LD-DTGJ-N
			15 \pm 5°	Threaded (M12)	DC	NO only	NO: ③ ④	WLD2-55LD-M1J
			10° $^{+2}_{-1}$ °			NO only	NO: ① ④	WLG2-55LD-M1GJ
			15 \pm 5°			NC only	NC: ③ ②	WLG2-55LD-M1JB
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLG2-55LD-DGJ03
			15 \pm 5°			NO only	NO: ③ ④ NC: ②	WLG2-55LD-DK1EJ03
			10° $^{+2}_{-1}$ °			NC only	NO: ① ④	WLG2-55LD-M1TGJ
			15 \pm 5°	Smartclick	DC	NC only	NC: ③ ②	WLG2-55LD-M1TJB
			10° $^{+2}_{-1}$ °			NC+NO	NO: ③ ④ NC: ① ②	WLG2-55LD-DTGJ03

Note: 1. The photo shows a typical model.

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

Plunger Actuators

Standard built-in switch

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator		With operation indicator *	
				LED		Neon lamp	
				Model	Model	Model	Model
	Sealed top-roller plunger	Screw terminals (Conduit size: G1/2)	1.7 mm max.	WLD28-N	WLD28-LD-N	WLD28-LE-N	
	Top-roller plunger			WLD2-N	WLD2-LD-N	WLD2-LE-N	
	Sealed top plunger			WLD18-N	WLD18-LD-N	WLD18-LE-N	
	Sealed top-ball plunger			WLD38-N	WLD38-LD-N	WLD38-LE-N	
	Horizontal plunger		2.8 mm max.	WLSD-N	WLSD-LD-N	WLSD-LE-N	
	Horizontal-roller plunger			WLSD2-N	WLSD2-LD-N	WLSD2-LE-N	
	Horizontal-ball plunger			WLSD3-N	WLSD3-LD-N	WLSD3-LE-N	

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

Appearance	Actuator	Terminal shape	Pretravel (PT)	Connector shape	Voltage	Wiring locations	Connector pin No.	Model
	Sealed top-roller plunger	Direct-wire connector type	1.7 mm max.	Threaded (M12)	DC	NO only	NO: ③ ④	WLD28-LDK13-N
		Pre-wired connector type				NC+NO	NO: ③ ④ NC: ① ②	WLD28-LDK43-N
						NO only	NO: ③ ④	WLD28-LD-M1J-N
						NO only	NO: ① ④	WLD28-LD-M1GJ-N
						NC+NO	NO: ③ ④ NC: ① ②	WLD28-LD-DGJ-N
						NO only	NO: ③ ④ NC: ②	WLD28-LD-DK1EJ-N

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

Airtight Built-in Switch

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator		With operation indicator *		
				LED		Neon lamp		
				Model	Model	Model	Model	
	Sealed top-roller plunger	Screw terminals (Conduit size: G1/2)	1.7 mm max.	WLD28-55-N	WLD28-55LD-N	WLD28-55LE-N		
			1.7 mm max.	WLD2-55-N	WLD2-55LD-N	WLD2-55LE-N		
			2.8 mm max.	WLSD-55-N	WLSD-55LD-N	---		
			2.8 mm max.	WLSD2-55-N	WLSD2-55LD-N	---		

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

Appearance	Actuator	Terminal shape	Pretravel (PT)	Connector shape	Voltage	Wiring locations	Connector pin No.	Model
	Sealed top-roller plunger	Direct-wire connector type	1.7 mm max.	Threaded (M12)	DC	NO only	NO: ③ ④	WLD28-55LDK13-N
		Pre-wired connectors type				NC+NO	NO: ③ ④ NC: ① ②	WLD28-55LDK43-N
						NO only	NO: ③ ④	WLD28-55LD-M1J-N
						NO only	NO: ① ④	WLD28-55LD-M1GJ-N
						NC+NO	NO: ③ ④ NC: ① ②	WLD28-55LD-DGJ-N
						NO only	NO: ③ ④ NC: ②	WLD28-55LD-DK1EJ-N

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

Flexible Rod

Standard built-in switch

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator	With operation indicator *		
					LED	Neon lamp	
				Model	Model	Model	
	Adjustable rod lever: (25 to 140 mm)	Screw terminals (Conduit size: G½)	15±5°	WLCL-N	WLCL-LD-N	WLCL-LE-N	
			25±5°	WLCL-2-N	WLCL-2LD-N	WLCL-2LE-N	
			20° max.	WLCL-2N-N	WLCL-2NLD-N	WLCL-2NLE-N	
			10° ^{+2°} _{-1°}	WLGL	WLGL-LD	WLGL-LE	
			15±5°	WLCAL4-N	WLCAL4-LD-N	WLCAL4-LE-N	
	Adjustable rod lever: (350 to 380 mm)		25±5°	---	---	---	
			20° max.	---	---	---	
			15±5°	WLCAL5-N	WLCAL5-LD-N	WLCAL5-LE-N	
			25±5°	---	---	---	
			20° max.	---	---	---	
	Rod spring lever		20±10 mm	WLNJ-N	WLNJ-LD-N	WLNJ-LE-N	
			20±10 mm	WLNJ-30-N	WLNJ-30LD-N	WLNJ-30LE-N	
			40±20 mm	WLNJ-2-N	WLNJ-2LD-N	WLNJ-2LE-N	
	Coil spring (6.5 dia.)		40±20 mm	WLNJ-S2-N	WLNJ-S2LD-N	WLNJ-S2LE-N	
			20±10 mm	WLNJ-30-N	WLNJ-30LD-N	WLNJ-30LE-N	
			40±20 mm	WLNJ-2-N	WLNJ-2LD-N	WLNJ-2LE-N	

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

Airtight Built-in Switch Specifications

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator	With operation indicator *		
					LED	Neon lamp	
				Model	Model	Model	
	Adjustable rod lever: 25 to 140 mm	Screw terminals (Conduit size: G½)	15±5°	WLCL-55-N	WLCL-55LD-N	---	
			25±5°	---	---	---	
			20° max.	---	---	---	
			20±10 mm	WLNJ-55-N	WLNJ-55LD-N	---	
			40±20 mm	WLNJ-255-N	WLNJ-255LD-N	---	
	Coil spring (6.5 dia.)		20±10 mm	WLNJ-55-N	WLNJ-55LD-N	---	
			40±20 mm	WLNJ-255-N	WLNJ-255LD-N	---	
			20±10 mm	WLNJ-55-N	WLNJ-55LD-N	---	
			40±20 mm	WLNJ-255-N	WLNJ-255LD-N	---	
			20±10 mm	WLNJ-55-N	WLNJ-55LD-N	---	

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

Fork Lock Lever

Appearance	Actuator	Terminal shape	Pretravel (PT)	Without operation indicator	With operation indicator *		
					LED	Neon lamp	
				Model	Model	Model	
	Fork Lock Lever A	Screw terminals (Conduit size: G½)	55° max.	WLCA32-41-N	WLCA32-41LD-N	WLCA32-41LE-N	
			55° max.	WLCA32-42-N	---	WLCA32-42LE-N	
			55° max.	WLCA32-43-N	WLCA32-43LD-N	WLCA32-43LE-N	
			55° max.	WLCA32-44-N	---	---	
			55° max.	WLCA32-44-N	---	---	
	Fork Lock Lever B		55° max.	WLCA32-42-N	---	WLCA32-42LE-N	
			55° max.	WLCA32-43-N	WLCA32-43LD-N	WLCA32-43LE-N	
			55° max.	WLCA32-44-N	---	---	
			55° max.	WLCA32-44-N	---	---	
			55° max.	WLCA32-44-N	---	---	

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

WL-N/WLG

Specifications

Ratings

Screw terminals

Without Operation Indicator

Basic models (WL-N)

Ratings		Non-inductive load (A)		Inductive load (A)			
		Basic models (WL-N)		Basic models (WL-N)			
		Resistive load	Lamp load	Inductive load	Motor load		
Voltage (V)		NC	NO	NC	NO	NC	NO
AC	125	10	3	1.5	10	5	2.5
	250	10	2	1	10	3	1.5
	500	10	1.5	0.8	3	1.5	0.8
DC	8	10	6	3	10	6	
	14	10	6	3	10	6	
	30	6	4	3	6	4	
	125	0.8	0.2	0.2	0.8	0.2	
	250	0.4	0.1	0.1	0.4	0.1	

High-sensitivity and High-precision models (WLG)

Ratings		Non-inductive load (A)			
		High-sensitivity and High-precision models (WLG)		Horizontal plunger models (WLSD□)	
		Resistive load			
Voltage (V)		NC		NO	
AC	125			5	
	250			5	
DC	125			0.4	
	250			0.2	

With Operation Indicator (LED)

Basic models (WL-N)

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

High-sensitivity and High-precision models (WLG)

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

With Operation Indicators (Neon Lamps)

Basic models (WL-N)

Ratings		Non-inductive load (A)		Inductive load (A)			
		Basic models (WL-N)		Basic models (WL-N)			
		Resistive load	Lamp load	Inductive load	Motor load		
Voltage (V)		NC	NO	NC	NO	NC	NO
AC	125	10	3	1.5	10	5	2.5
	250	10	2	1	10	3	1.5

High-sensitivity and High-precision models (WLG)

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

Note: 1. The above figures are for steady-state currents.

2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).

3. A lamp load has an inrush current of 10 times the steady-state current.

4. A motor load has an inrush current of 6 times the steady-state current.

Allowable Inrush Current/Minimum Applicable Load

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

Operation Indicator

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

Direct-wired connector and Pre-wired Connector Type**Connector DC Specifications: With Operation Indicators (LEDs)****Basic models (WL-N)**

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

Connector AC Specifications: With Operation Indicators (LEDs)**Basic models (WL-N)**

Ratings		Non-inductive load (A)		Inductive load (A)			
		Basic models (WL-N)		Basic models (WL-N)			
		Resistive load	Lamp load	Inductive load	Motor load		
Voltage (V)		NC	NO	NC	NO	NC	NO
AC	115	3		3	1.5	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.

Minimum Applicable Load

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

Operation Indicator

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

Characteristics

Operating characteristics type	Basic models (WL-N)	High-sensitivity and High-precision models (WLG)
Permissible operating frequency	Mechanical 120 operations/minute Electrical 30 operations/minute	
Rated frequency	50/60 Hz	
Permissible operating speed	1 mm/s to 1 m/s (in case of WLCA2-N)	
Insulation resistance	100 MΩ min. (at 500 VDC)	
Contact resistance	25 mΩ max. (initial value for the built-in switch)	
Vibration resistance	Malfunction 10 to 55 Hz, 1.5-mm double amplitude	
Shock	Destruction 1,000 m/s ² max.	
	Malfunction 300 m/s ² max. *2	
Durability *1	Mechanical 15,000,000 operations min. (Flexible Rod models: 10,000,000 operations min.)	10,000,000 operations min.
	Electrical 750,000 operations min. (Screw terminals: without operation indicators, 3 A at 250 VAC, resistive load. Direct-wire connector/Pre-wired connector: with operation indicators, 0.8 A at 115 VDC, resistive load) *3	500,000 operations min. (3 A at 250 VAC, resistive load), but for high-precision models
Ambient operating temperature	-10 to +80°C (with no icing)	
Ambient operating humidity	35 to 95%RH	
Degree of protection *4	IP67 (EN60947-5-1)	
Weight	Approx. 255 g (in case of WLCA2-N)	Approx. 270 g (in case of WLGCA2)

Note: The above figures are initial values.

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

*2. Except Switches with Flexible Rod Actuators.

*3. Horizontal plunger models: 500,000 operations min. (3 A at 250 VAC, resistive load)

*4. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.

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

* Excluding those with operation indicators.

High-sensitivity and High-precision models (WLG)

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

Circuit Configuration

Terminal Connection Diagram

Operating characteristics type	Basic models (WL-N)																													
Wiring Specifications	Screw terminals	Direct-wire connector and Pre-wired Connector Models																												
Without operation indicator		AC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②				
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
With operation indicator (Light-ON when not operating *)		AC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②				
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
High-sensitivity and High-precision models (WLG)																														
Wiring Specifications	Screw terminals	Direct-wire connector and Pre-wired Connector Models																												
Without operation indicator		AC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p> DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>3 core</td><td>④</td><td>---</td><td>②</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②	NO	NC	NC	NO	2 core	④	---	---	3 core	④	---	②	4 core	④	①	②
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
NO	NC	NC	NO																											
2 core	④	---	---																											
3 core	④	---	②																											
4 core	④	①	②																											
With operation indicator (Light-ON when not operating *)		AC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p> DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>2 core</td><td>④</td><td>---</td><td>---</td></tr> <tr><td>3 core</td><td>④</td><td>---</td><td>②</td></tr> <tr><td>4 core</td><td>④</td><td>①</td><td>②</td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	2 core	④	---	---	4 core	④	①	②	NO	NC	NC	NO	2 core	④	---	---	3 core	④	---	②	4 core	④	①	②
NO	NC	NC	NO																											
2 core	④	---	---																											
4 core	④	①	②																											
NO	NC	NC	NO																											
2 core	④	---	---																											
3 core	④	---	②																											
4 core	④	①	②																											

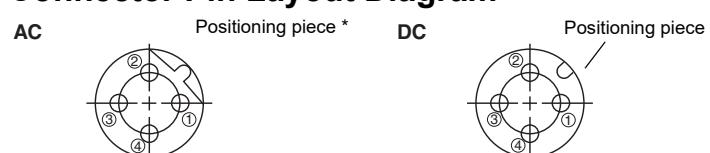
Note: Leakage current from indicator circuit may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current.

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

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

The above shows details of the switch interior. External wires (external resistances) are not shown. For details, refer to *Operation* on page 19.

Connector Pin Layout Diagram



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

Structure and Nomenclature

WLCA2-N

Actuator

Roller

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

Lever

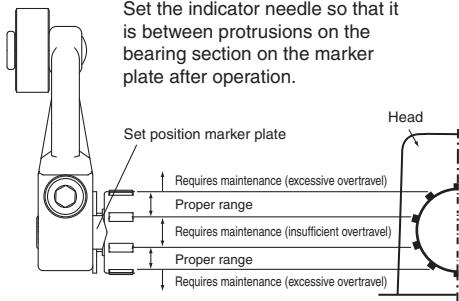
The lever is forged from corrosion-resistant aluminum alloy. It provides superior corrosion resistance and outstanding strength.

With roller lever, adjustable rod and flexible rod models, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Roller Lever Bolt

Set Position Marker Plate

Set the indicator needle so that it is between protrusions on the bearing section on the marker plate after operation.



Cover Setscrew

A combination Phillips-slotted screw is used.

A retainer prevents the screw from falling from the cover even when the screw is loose.

Cover

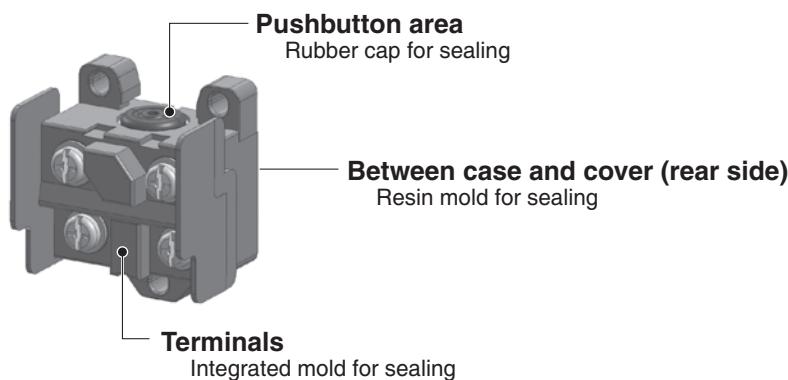
Cover Seal

High sealing performance is achieved. The seal also serves as a spacer.

There is no troublesome insulating paper, making it easy to work with the Switch.

Built-in switch

Airtight built-in switch (-55)



Head-mounting Screws

Shaft Section Seal

An oil seal is fitted on the inlet of the shaft section to maintain a tight seal.

Operational Plunger

You can change the direction of the operational plunger to electrically switch the direction of operation between both sides, left only, or right only. (Refer to page 87)

Head

You can remove the two screws to mount the switch in any of the four possible orientations.

If changing the direction of the head, pay attention to the orientation of the operation plunger. (Refer to page 87)

Main unit

Built-in Switch

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

Terminal Screws

Four, M3.5 screws

Conduit Opening

The conduit screw is a parallel screw for G $\frac{1}{2}$ piping, and is used together with an SC connector to maintain a tight seal.

WLG2

Actuator

Roller

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

Lever

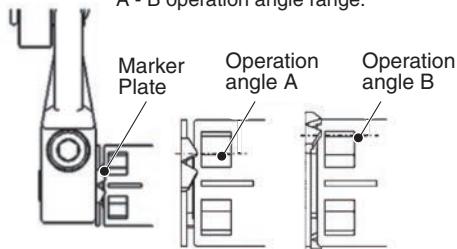
The lever is forged from corrosion-resistant aluminum alloy. It provides superior corrosion resistance and outstanding strength.

With roller lever, adjustable rod and flexible rod models, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Roller Lever Setscrew

Set Position Marker Plate

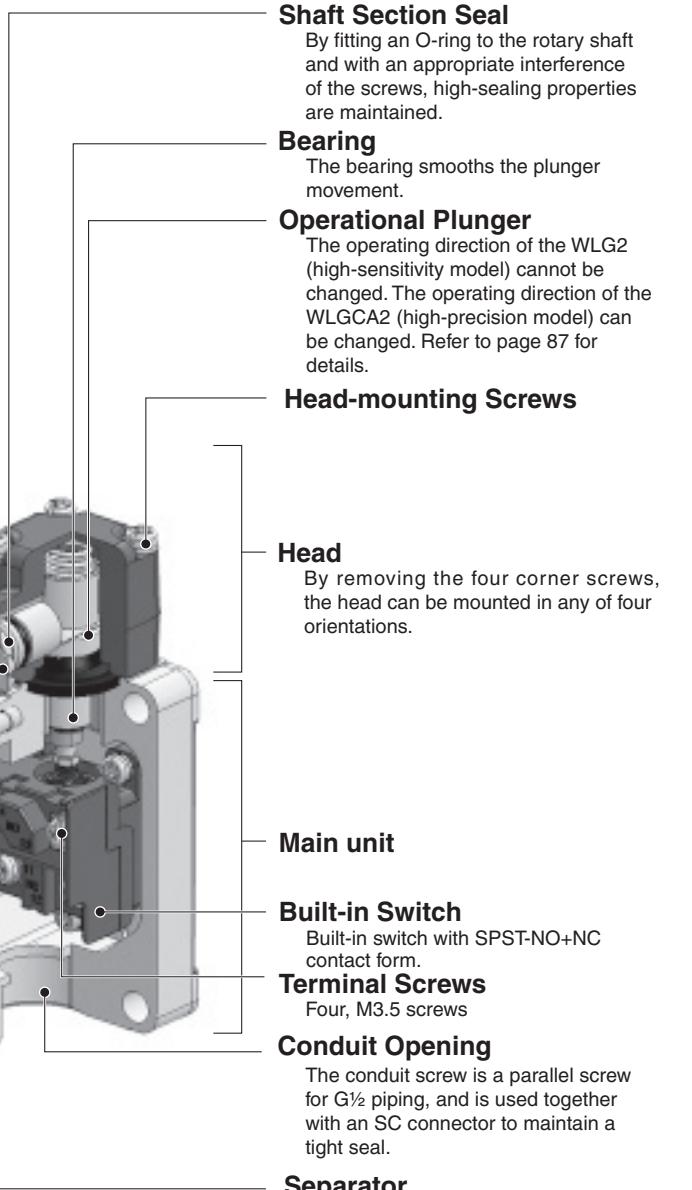
In the operation state, adjust the two pointers on the marker plate to within the A - B operation angle range.



Cover

Cover Setscrew

A combination Philips-slotted screw is used. A retainer prevents the screw from falling from the cover even when the screw is loose.



Note: The built-in switch structure and name of each part are the same as on page 17.

Shaft Section Seal

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

Bearing

The bearing smooths the plunger movement.

Operational Plunger

The operating direction of the WLG2 (high-sensitivity model) cannot be changed. The operating direction of the WLGA2 (high-precision model) can be changed. Refer to page 87 for details.

Head-mounting Screws

Head

By removing the four corner screws, the head can be mounted in any of four orientations.

Main unit

Built-in Switch

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

Terminal Screws

Four, M3.5 screws

Conduit Opening

The conduit screw is a parallel screw for G1/2 piping, and is used together with an SC connector to maintain a tight seal.

Separator

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

Operation Indicator

Indicator Covers

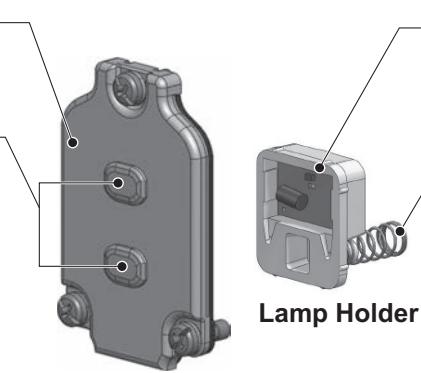
The indicator covered is outsert molded from diecast aluminum and has outstanding sealing properties.

Indicator Windows

Operating status (i.e., light-ON when operating or light-ON when not operating) depends on whether a neon lamp or an 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°.



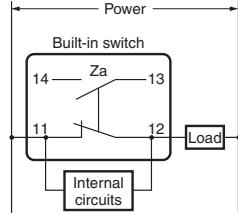
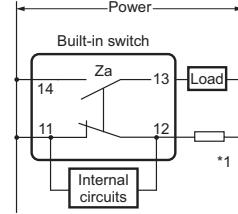
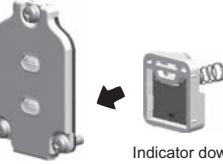
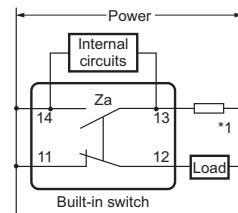
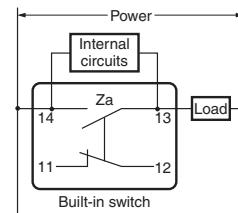
Indicator

The indicator is either a neon lamp or an LED. Switches with LED indicators have a built-in rectifier stack, so there is no connection 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

Operation indicator type	Operation type	When load is connected to NC (11-12)	When load is connected to NO (13-14)
LED Neon lamp	Light-ON when operating 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. 		
	Light-ON when not operating 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. 		

Note: 1. Leakage current from indicator circuit may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current. For countermeasures, refer to technical support on your OMRON website.

2. For details on accessories (sold separately), refer to page 79.

*1. Be sure to connect a resistor for protection in order to prevent short-circuit current flow when the contacts are ON. For the resistance value or capacity of protection resistance, refer to the table below. The indicator may slightly dim by connecting to protection resistance.

Reference: Example of Protection Resistance

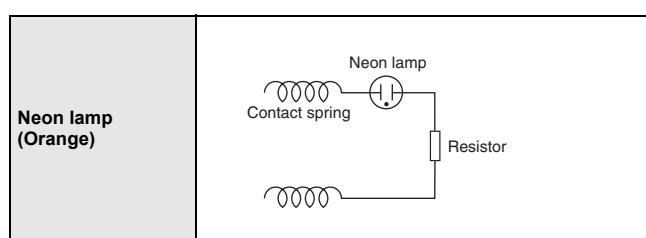
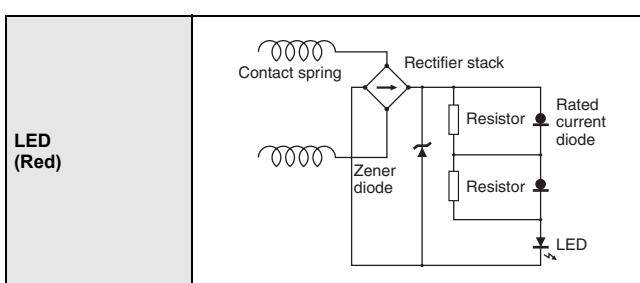
The capacity value is a numerical value that does not account for the margin. Select a resistor with sufficient capacity.

When calculating using the leakage current in this catalog, the display becomes slightly dim.

Use of a current that is at least around twice the leakage current is recommended.

Type	Indicator	Voltage	Protection resistance (example)	
			Resistance	Capacity
LED	Approx. 0.5 mA	115 VAC/DC	Approx. 50 kΩ	0.27 W min.
	Approx. 0.4 mA	24 VAC/DC	Approx. 10 kΩ	0.06 W min.
	Approx. 0.4 mA	10 VAC/DC	Approx. 10 kΩ	0.01 W min.
Neon lamp	Approx. 1.9 mA	250 VAC	Approx. 100 kΩ	0.63 W min.
	Approx. 0.6 mA	125 VAC	Approx. 100 kΩ	0.16 W min.

Internal Circuits



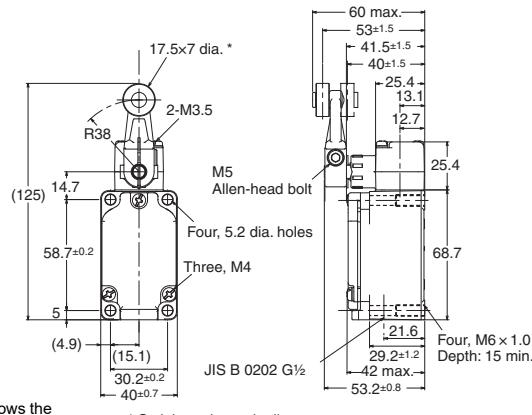
Dimensions

(Unit: mm)

Roller Lever

Screw terminals

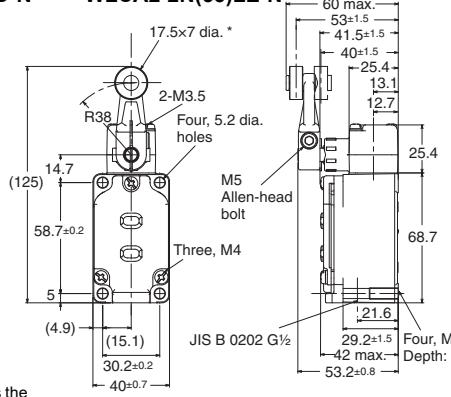
Roller lever R38

WLCA2(-55)-N
WLCA2-2(55)-N
WLCA2-2N(55)-N

Note: The photo shows the WLCA2-N model.

* Stainless sintered roller

Roller lever R38 With operation indicator

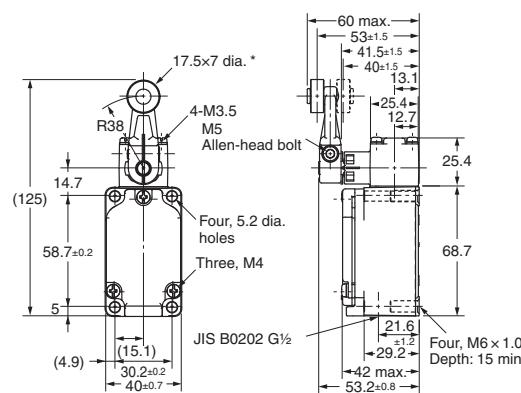
LED
WLCA2-(55)LD-N
WLCA2-2(55)LD-N
WLCA2-2N(55)LD-N

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

Neon lamp
WLCA2-(55)LE-N
WLCA2-2(55)LE-N
WLCA2-2N(55)LE-N

* Stainless sintered roller

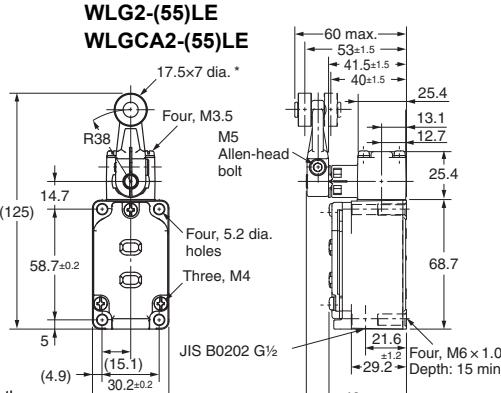
Roller lever R38

WLG2(-55)
WLGCA2(-55)

Note: The photo shows the WLG2 model.

* Stainless sintered roller

Roller lever R38 With operation indicator

LED
WLG2-(55)LD
WLGCA2-(55)LD

Note: The photo shows the WLG2-LD model.

Neon lamp
WLG2-(55)LE
WLGCA2-(55)LE

* Stainless sintered roller

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

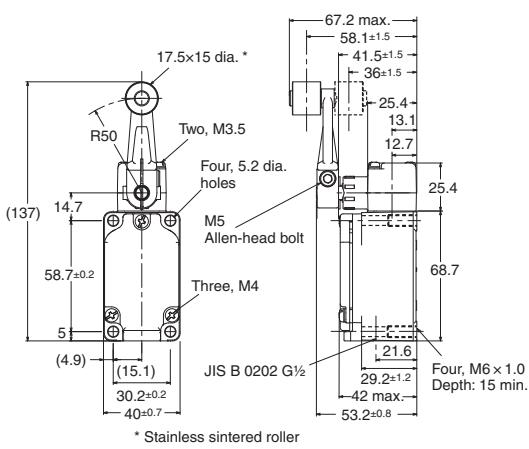
Operating characteristics

Model		WLCA2(-55)-N WLCA2-(55)LD-N WLCA2-(55)LE-N	WLCA2-2(-55)-N WLCA2-2(55)LD-N WLCA2-2(55)LE-N	WLCA2-2N(-55)-N WLCA2-2N-(55)LD-N WLCA2-2N-(55)LE-N	WLG2(-55) WLG2-(55)LD WLG2-(55)LE	WLGCA2(-55) WLGCA2-(55)LD WLGCA2-(55)LE
Operating force Release force	OF RF	max. min.	13.34 N 1.18 N	13.34 N 1.18 N	13.34 N 1.18 N	9.81 N 0.98 N
Pretravel Overtravel	PT OT	15±5° 70°	25±5° 60°	20° max. 70°	10° 65°	10° 65°
Movement Differential	MD	max.	12°	16°	10°	7°

Screw terminals

Roller lever R50

WLCA2-7-N



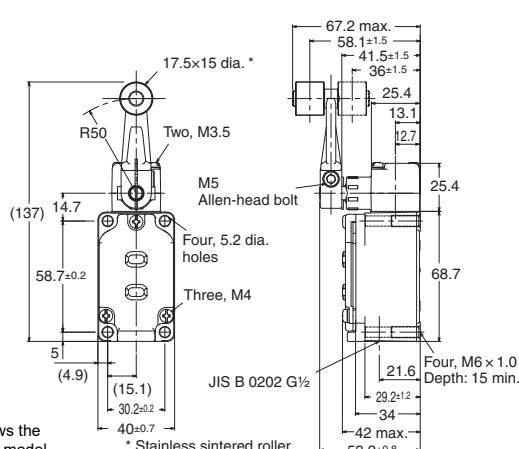
Roller lever R50 With operation indicator

LED

WLCA2-7LD-N

Neon lamp

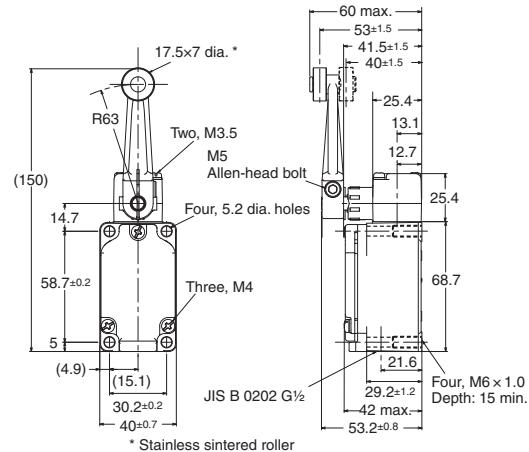
WLCA2-7LE-N



Note: The photo shows the WLCA2-7LD-N model.

Roller lever R63

WLCA2-8-N



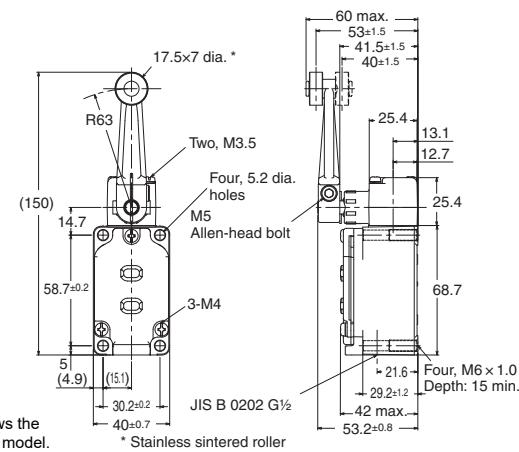
Roller lever R63 With operation indicator

LED

WLCA2-8LD-N

Neon lamp

WLCA2-8LE-N



Note: The photo shows the WLCA2-8LD-N model.

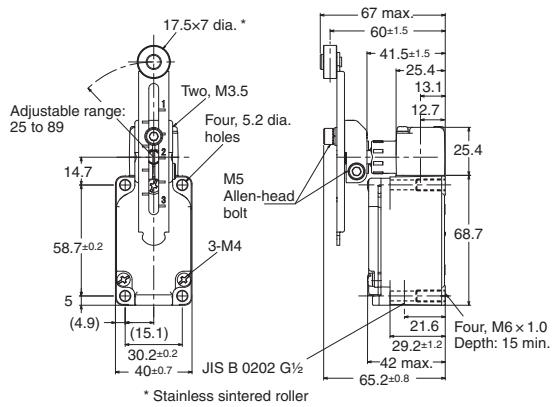
Note: Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

Model		WLCA2-7-N WLCA2-7LD-N WLCA2-7LE-N	WLCA2-8-N WLCA2-8LD-N WLCA2-8LE-N
Operating force	OF max.	10.2 N	8.04 N
Release force	RF min.	0.9 N	0.71 N
Pretravel	PT	$15\pm 5^\circ$	$15\pm 5^\circ$
Overtravel	OT min. max.	70° 12°	70° 12°
Movement Differential	MD		

Screw terminals

Adjustable Roller Lever (R25 to 89 mm)

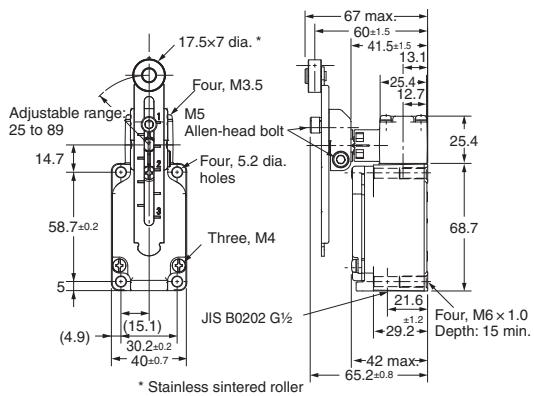
WLCA12(-55)-N
WLCA12-2-N
WLCA12-2N-N



Note: The photo shows the WLCA12-N model.

Adjustable Roller Lever (R25 to 89 mm)

WLCA12



* Stainless sintered roller

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

Operating characteristics

Model	WLCA12 (-55) -N *	WLCA12-2-N *	WLCA12-2N-N *	WLCA12 *
Operating force OF	max.	13.34 N	13.34 N	9.81 N
Release force RF	min.	1.18 N	1.18 N	0.98 N
Pretravel PT		15 \pm 5°	25 \pm 5°	10° $^{+2°}_{-1°}$
Overtravel OT	min.	70°	60°	65°
Movement Differential MD	max.	12°	16°	7°

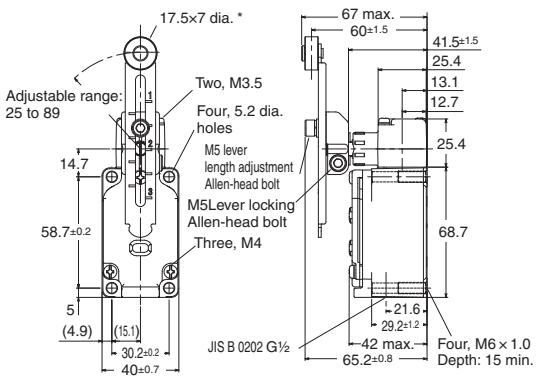
* The operating characteristics are measured at the lever length of 38 mm.

Adjustable Roller Lever (R25 to 89 mm)

With operation indicator

LED
WLCA12-(55)LD-N
WLCA12-2LD-N
WLCA12-2NLD-N

Neon lamp
WLCA12-(55)LE-N
WLCA12-2LE-N
WLCA12-2NLE-N



* Stainless sintered roller

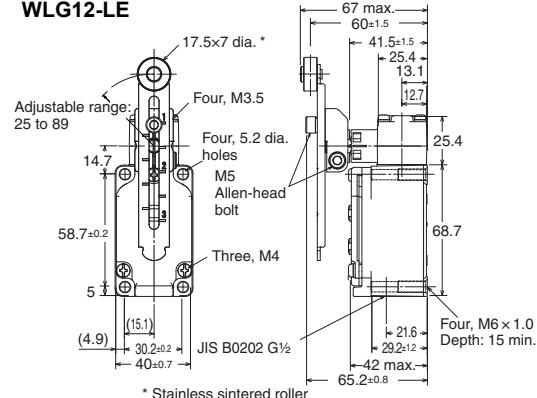
Note: The photo shows the WLCA12-2LD-N model.

Adjustable Roller Lever (R25 to 89 mm)

With operation indicator

LED
WLG12-LD

Neon lamp
WLG12-LE



* Stainless sintered roller

Note: The photo shows the WLG12-LD model.

Direct-wire connector

Roller lever R38 With operation indicator

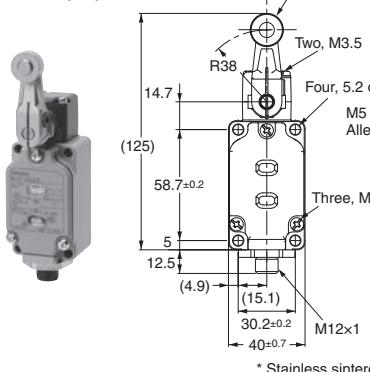
LED

WLCA2-LDK13A-N

WLCA2-(55)LDK13-N

WLCA2-LDK43A-N

WLCA2-(55)LDK43-N



Note: The photo shows the WLCA2-LDK13-N model.

Roller lever R38 With operation indicator

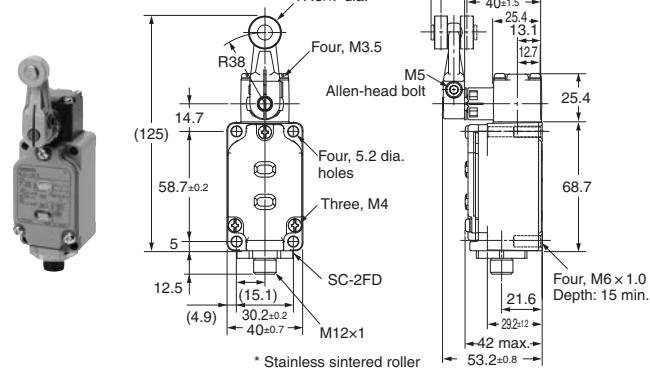
LED

WLG2-(55)LDK13

WLG2-(55)LDK43

WLGCA2-(55)LDK13

WLGCA2-(55)LDK43



Note: The photo shows the WLG2-LDK13 model.

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

Operating characteristics

Model		WLCA2-LDK13A-N WLCA2-(55)LDK13-N WLCA2-LDK43A-N WLCA2-(55)LDK43-N	WLG2-(55)LDK13 WLG2-(55)LDK43	WLCA2-(55)LDK13 WLCA2-(55)LDK43
Operating force	OF	max.	13.34 N	9.81 N
Release force	RF	min.	1.18 N	0.98 N
Pretravel	PT		$15^{\circ}\pm 5^{\circ}$	$10^{\circ}\pm 2^{\circ}$
Overtravel	OT	min.	70°	65°
Movement Differential	MD	max.	12°	7°

Pre-wired connectors

Roller lever R38 With operation indicator

LED

Threaded (M12)

WLCA2-(55)LD-M1J-N

WLCA2-(55)LD-M1GJ-N

WLCA2-(55)LD-DGJ-N

WLCA2-(55)LD-DK1EJ-N

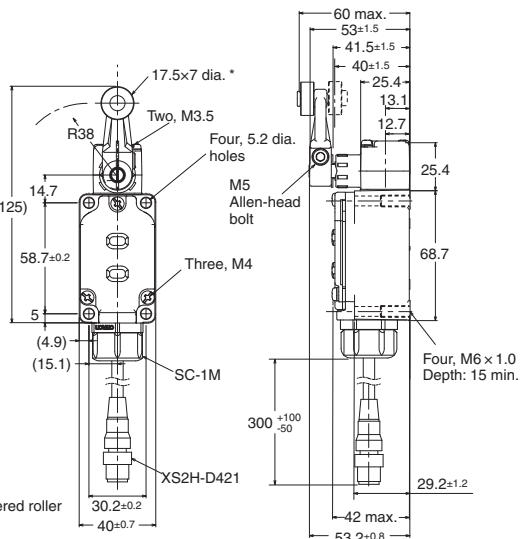
Smartclick

WLCA2(55)LD-DTGJ-N

WLCA2-LD-DTK1EJ-N



* Stainless sintered roller



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

Roller lever R38 With operation indicator

LED

Threaded (M12)

WLG2-(55)LD-M1J

WLG2-(55)LD-M1GJ

WLG2-(55)LD-M1JB

WLG2-(55)LD-DGJ03

WLG2-(55)LD-DK1EJ03

Smartclick

WLG2-(55)LD-M1TJ

WLG2-(55)LD-M1TGJ

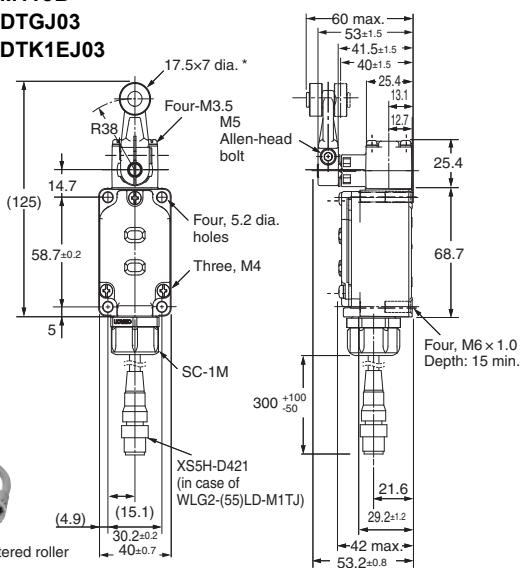
WLG2-(55)LD-M1TJB

WLG2-(55)LD-DTGJ03

WLG2-(55)LD-DTK1EJ03



* Stainless sintered roller



Note: The photo shows the WLG2-LD-M1J model.

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

Operating characteristics

Model	WLCA2-(55)LD-M1J-N WLCA2-(55)LD-M1GJ-N WLCA2-(55)LD-M1JB-N WLCA2-(55)LD-DGJ-N WLCA2-(55)LD-DK1EJ-N WLCA2-(55)LD-DTGJ-N WLCA2-LD-DTK1EJ-N	WLG2-(55)LD-M1J WLG2-(55)LD-M1GJ WLG2-(55)LD-M1JB WLG2-(55)LD-DGJ03 WLG2-(55)LD-DK1EJ03 WLG2-(55)LD-M1TJ WLG2-(55)LD-M1TGJ WLG2-(55)LD-M1TJB WLG2-(55)LD-DTGJ03 WLG2-(55)LD-DTK1EJ03
Operating force OF max.	13.34 N	9.81 N
Release force RF min.	1.18 N	0.98 N
Pretravel PT	15 \pm 5°	10° $^{+2\circ}$ 10° $^{-1\circ}$
Overtravel OT min.	70°	65°
Movement Differential MD max.	12°	7°

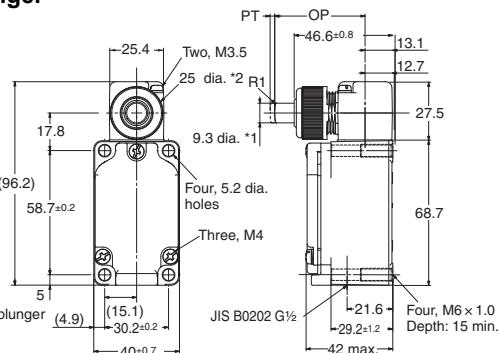
Screw terminals

Horizontal plunger

WLSD(-55)-N



*1. Stainless steel plunger (4.9)
*2. Cosmetic nuts (40±0.7)

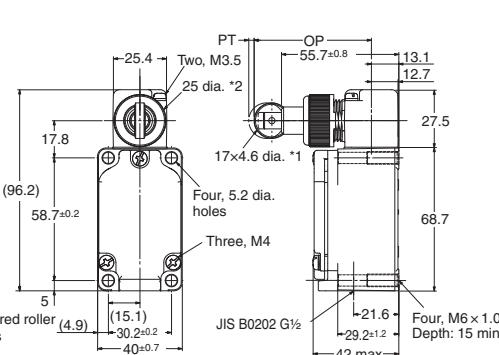


Horizontal-roller plunger

WLSD2(-55)-N



*1. Stainless sintered roller (4.9)
*2. Cosmetic nuts (40±0.7)

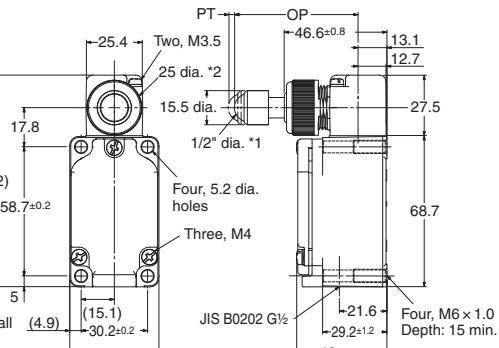


Horizontal-ball plunger

WLSD3-N



*1. Stainless steel ball (4.9)
*2. Cosmetic nuts (40±0.7)



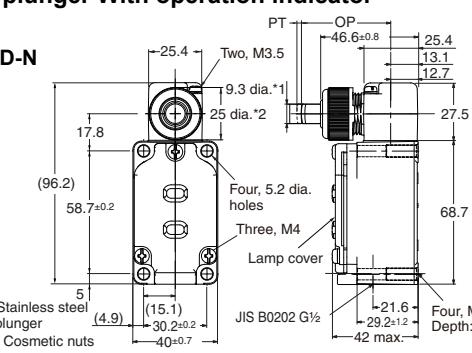
Horizontal plunger With operation indicator

LED

WLSD-(55)LD-N

Neon lamp

WLSD-LE-N



Note: The photo shows the WLSD-LE-N model.

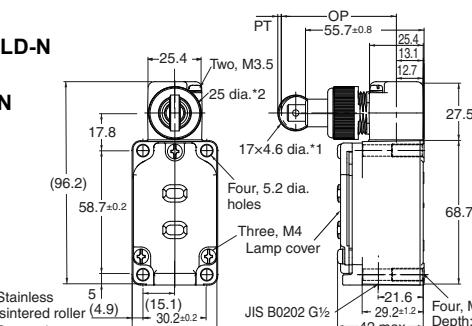
Horizontal-roller plunger With operation indicator

LED

WLSD2-(55)LD-N

Neon lamp

WLSD2-LE-N



Note: The photo shows the WLSD2-LE-N model.

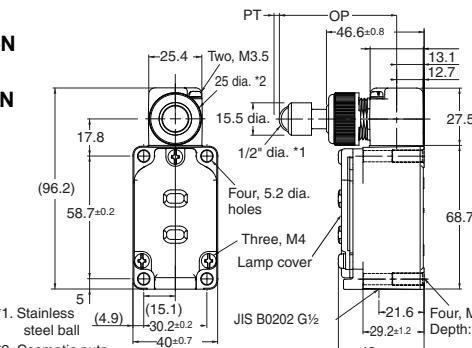
Horizontal-ball plunger With operation indicator

LED

WLSD3-LD-N

Neon lamp

WLSD3-LE-N

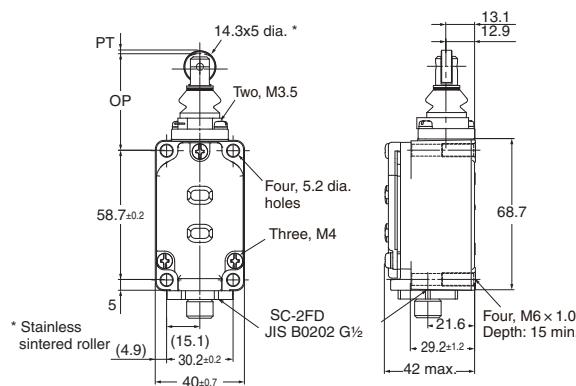
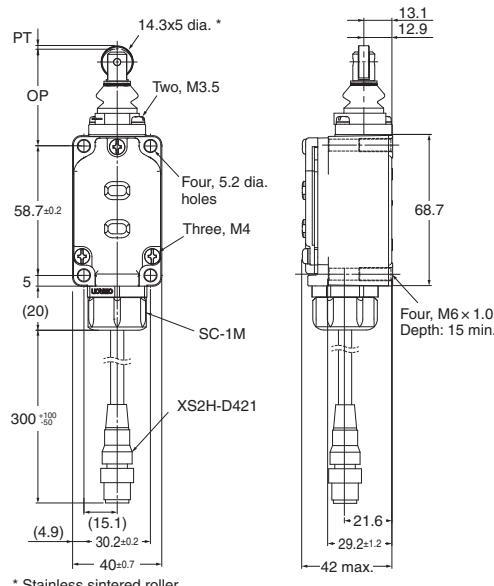


Note: The photo shows the WLSD3-LE-N model.

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

Operating characteristics

	Model	WLSD(-55)-N WLSD(-55)LD-N WLSD-LE-N	WLSD2(-55)-N WLSD2(-55)LD-N WLSD2-LE-N	WLSD3-N WLSD3-LD-N WLSD3-LE-N
Operating force	OF	max.	40.03 N	40.03 N
Release force	RF	min.	8.89 N	8.89 N
Pretravel	PT	max.	2.8 mm	2.8 mm
Overtravel	OT	min.	6.4 mm	5.6 mm
Movement Differential	MD	max.	1 mm	1 mm
Operating position	OP		40.6±0.8 mm	54.1±0.8 mm

Direct-wire connector**Sealed top-roller plunger With operation indicator****LED****WLD28-(55)LDK13-N****WLD28-(55)LDK43-N****Note:** The photo shows the WLD28-LDK13-N model.**Pre-wired connectors****Sealed top-roller plunger With operation indicator****Threaded (M12)****LED****WLD28-(55)LD-M1J-N****WLD28-(55)LD-M1GJ-N****WLD28-(55)LD-DGJ-N****Note:** The photo shows the WLD28-LD-M1J-N model.**Note:** Unless otherwise indicated, a tolerance of ±0.4 mm applies to all dimensions.**Operating characteristics**

Model			WLD28-(55)LDK13-N WLD28-(55)LDK43-N WLD28-(55)LD-M1J-N WLD28-(55)LD-M1GJ-N WLD28-(55)LD-DGJ-N WLD28-(55)LD-DK1EJ-N
Operating force	OF	max.	16.67 N
Release force	RF	min.	4.41 N
Pretravel	PT	max.	1.7 mm
Overtravel	OT	min.	5.6 mm
Movement Differential	MD	max.	1 mm
Operating position	OP		44±0.8 mm
Total travel position	TTP	max.	39.5 mm

Flexible Rod

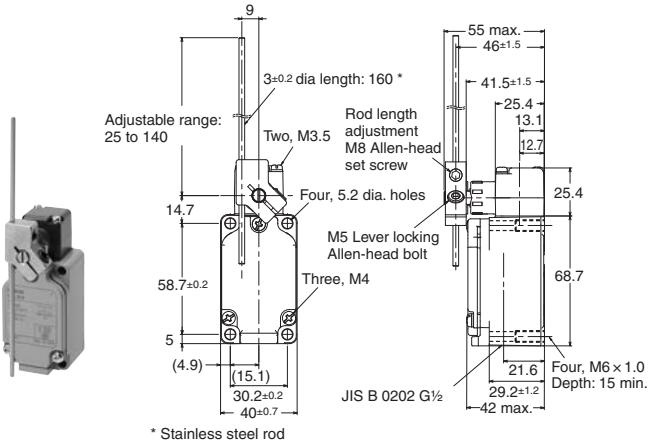
Screw terminals

Adjustable rod lever (25 to 140 mm)

WLCL(-55)-N

WLCL-2-N

WLCL-2N-N



Note: The photo shows the WLCL-2N-N model.

Adjustable rod lever (25 to 140 mm)

With operation indicator

LED

WLCL-(55)LD-N

WLCL-2LD-N

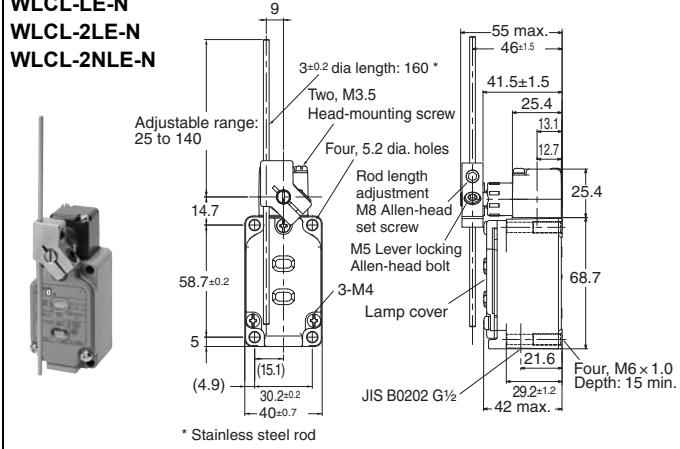
WLCL-2NLD-N

Neon lamp

WLCL-LE-N

WLCL-2LE-N

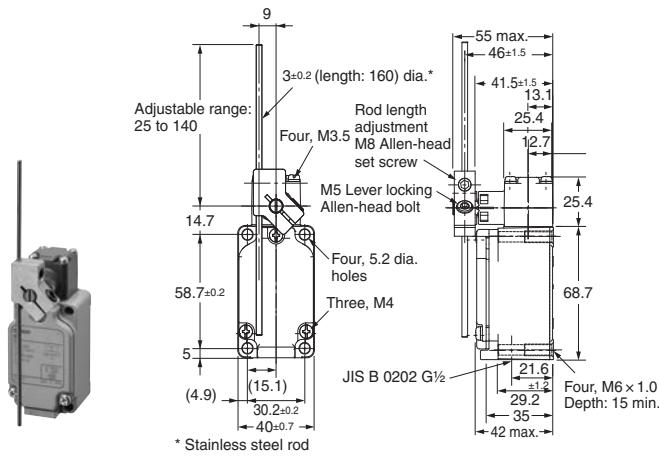
WLCL-2NLE-N



Note: The photo shows the WLCL-2LD-N model.

Adjustable rod lever (25 to 140 mm)

WLGL



Adjustable Roller Lever (25 to 140 mm)

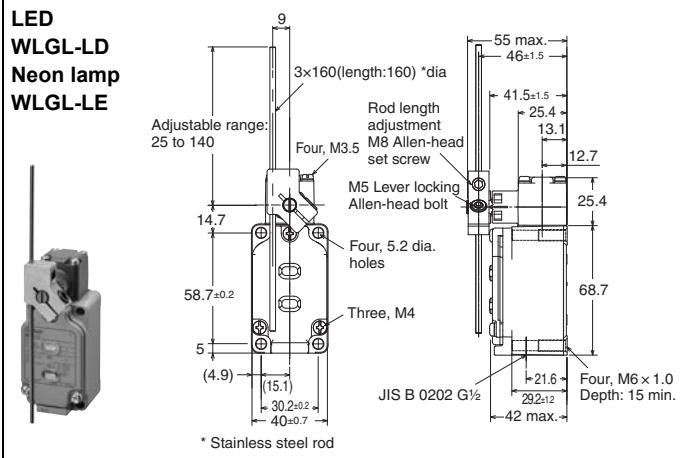
With operation indicator

LED

WLGL-LD

Neon lamp

WLGL-LE



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

Operating characteristics

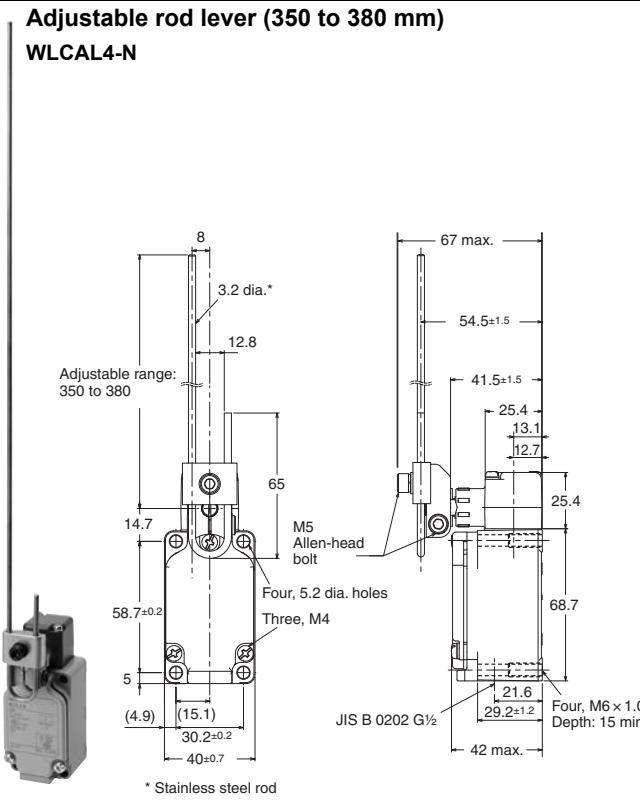
Model	WLCL(-55)-N *	WLCL-2-N *	WLCL-2N-N *	WLGL *
WLCL-LD-N *	WLCL-2LD-N *	WLCL-2NLD-N *	WLGL-LD *	
WLCL-LE-N *	WLCL-2LE-N *	WLCL-2NLE-N *	WLGL-LE *	
Operating force OF max.	1.39 N	1.39 N	1.39 N	2.84 N
Release force RF min.	0.27 N	0.27 N	0.27 N	0.25 N
Pretravel PT	15±5°	25±5°	20° max.	10° ^{±2°}
Overttravel OT min.	70°	60°	70°	65°
Movement Differential MD max.	12°	16°	10°	7°

* This is the value when the rod length is 140 mm.

Screw terminals

Adjustable rod lever (350 to 380 mm)

WLCAL4-N



Adjustable Roller Lever (350 to 380 mm)

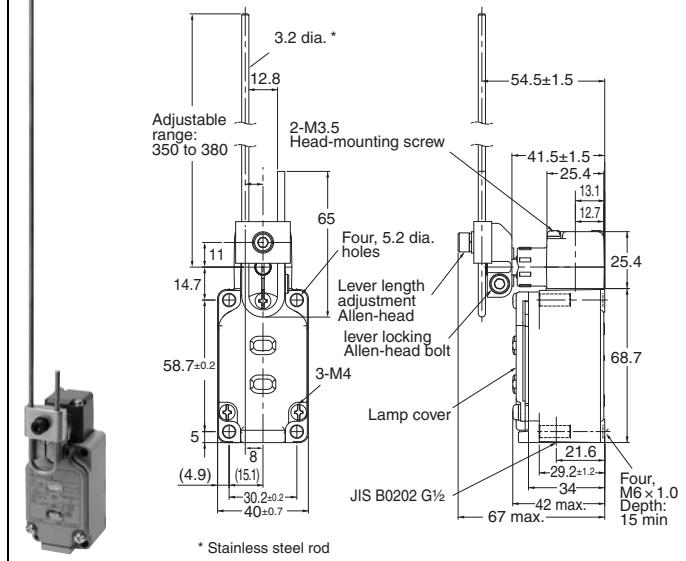
With operation indicator

LED

WLCAL4-LD-N

Neon lamp

WLCAL4-LE-N



Note: The photo shows the WLCAL4-LD-N model.

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

Operating characteristics

Model		WLCAL4-N *	WLCAL4-LD-N *	WLCAL4-LE-N *
Operating force	OF	max.	0.98 N	
Release force	RF	min.	0.15 N	
Pretravel	PT		15 \pm 5°	
Overtravel	OT	min.	70°	
Movement Differential	MD	max.	12°	

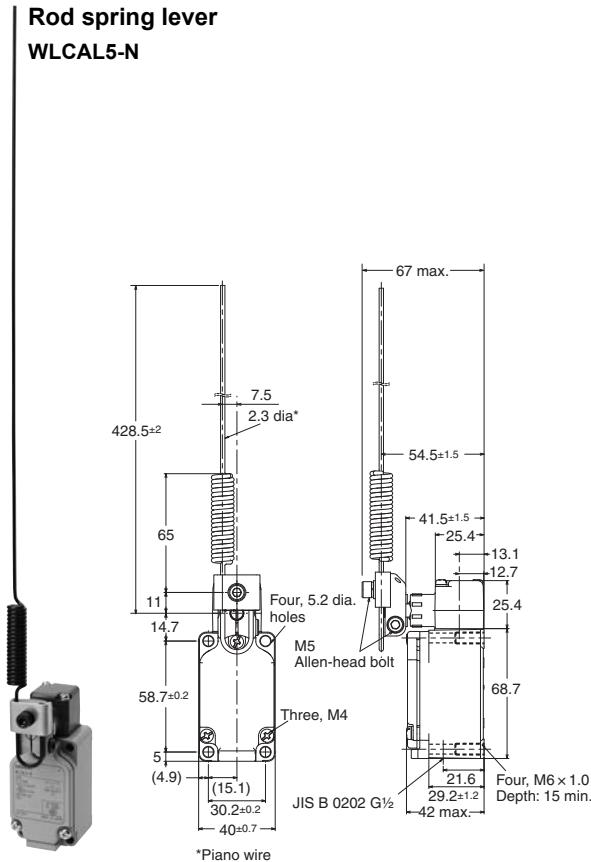
Note: With WLCAL4-N, WLCAL4-LD-N and WLCAL4-LE-N the actuator's tare is large, so depending on the installation direction, they may not be properly reset. Always install so that the actuator is facing downwards.

* This is the value when the rod length is 380 mm.

Screw terminals

Rod spring lever

WLCAL5-N



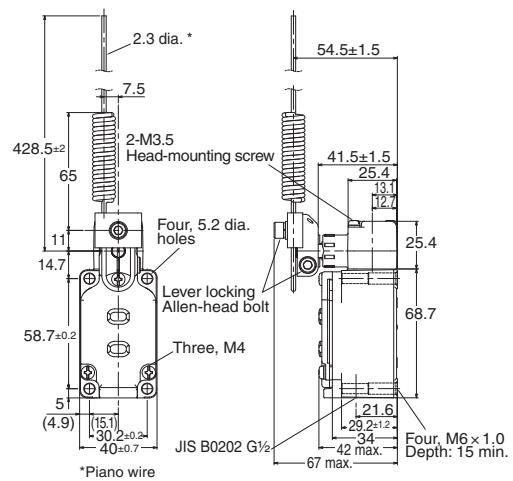
Rod spring lever With operation indicator

LED

WLCAL5-LD-N

Neon lamp

WLCAL5-LE-N



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

Model		WLCAL5-N *	WLCAL5-LD-N *	WLCAL5-LE-N *
Operating force	OF	max.	0.9 N	
Release force	RF	min.	0.09 N	
Pretravel	PT		15±5°	
Overtravel	OT	min.	70°	
Movement Differential	MD	max.	12°	

Note: With WLCAL5-N, WLCAL5-LD-N, and WLCAL5-LE-N, 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.

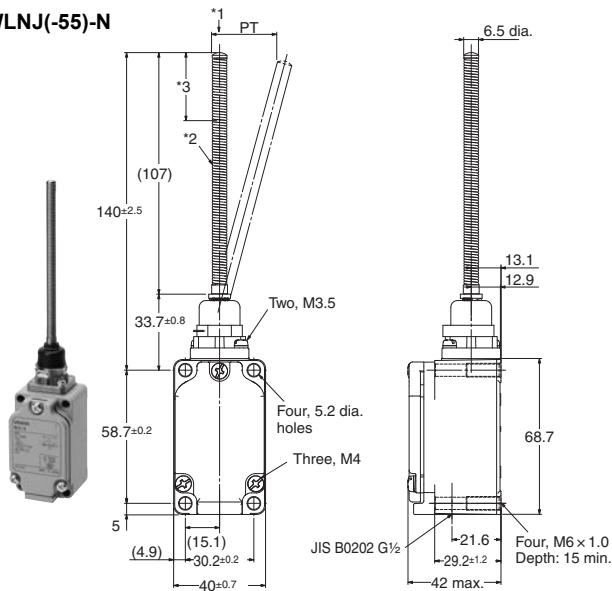
* This is the value when the rod length is 380 mm.

Flexible Rod

Screw terminals

Coil spring

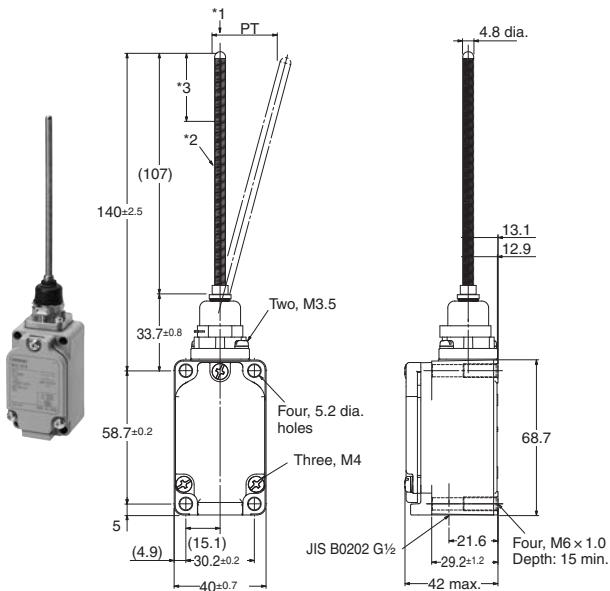
WLNJ-(55)-N



- *1. Do not operate the Switch in the direction of the axial center.
- *2. Stainless steel coil spring.
- *3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

Coil Spring (Multi-wire)

WLNJ-30-N



- *1. Do not operate the Switch in the direction of the axial center.
- *2. Piano wire coil spring.
- *3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

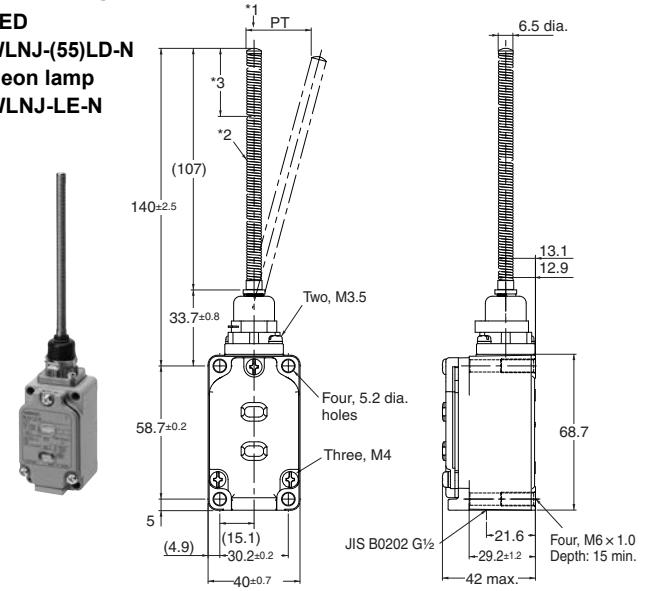
Coil spring With operation indicator

LED

WLNJ-(55)LD-N

Neon lamp

WLNJ-LE-N



Note: The photo shows the WLNJ-LD-N model.

- *1. Do not operate the Switch in the direction of the axial center.
- *2. Stainless steel coil spring.
- *3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

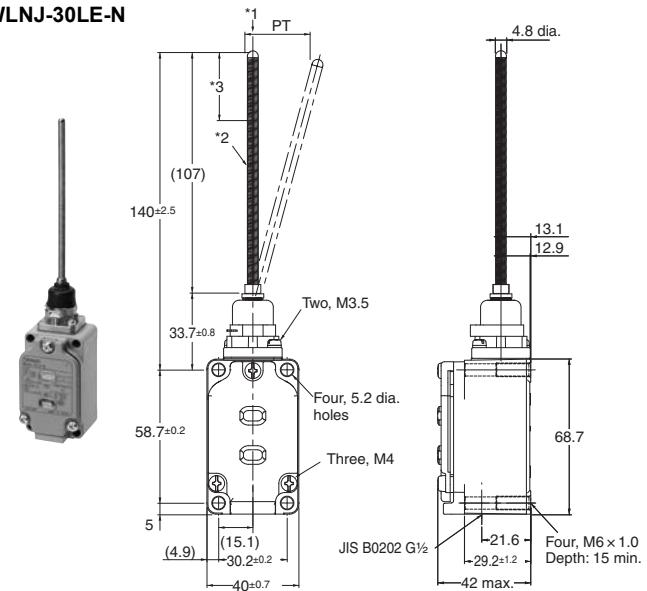
Coil Spring (Multi-wire) With operation indicator

LED

WLNJ-30LD-N

Neon lamp

WLNJ-30LE-N



Note: The photo shows the WLNJ-30LD-N model.

- *1. Do not operate the Switch in the direction of the axial center.
- *2. Piano wire coil spring.
- *3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

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

Operating characteristics

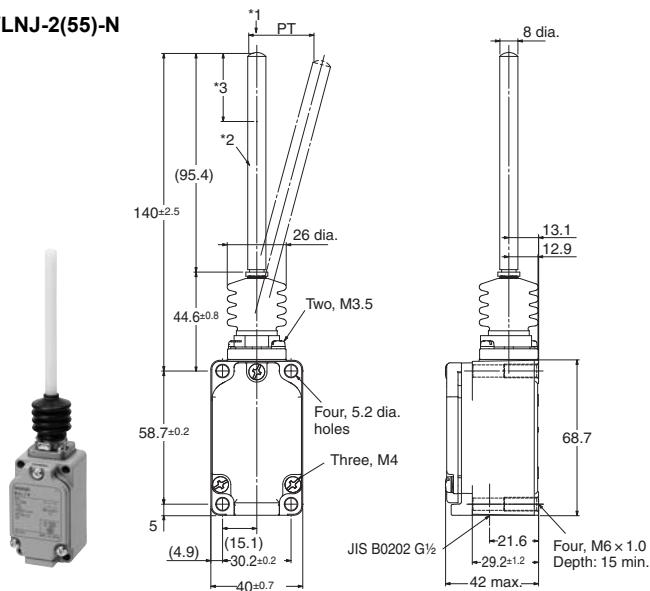
Model		WLNJ-(55)-N *	WLNJ-30-N *
Operating force	OF	WLNJ-(55)LD-N *	WLNJ-30LD-N *
Pretravel	PT	WLNJ-LE-N *	WLNJ-30LE-N *
		1.47 N 20 \pm 10 mm	1.47 N 20 \pm 10 mm

* These values are for the top end of the spring, rod, or wire.

Flexible Rod Screw terminals

Resin rod

WLNJ-2(55)-N

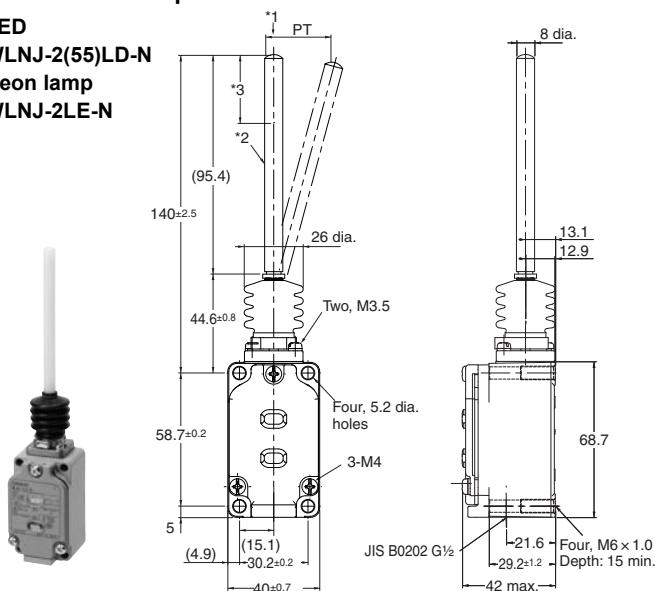


*1. Do not operate the Switch in the direction of the axial center.
*2. Polyamide Resin Rod.
*3. The range for operation is 1/3rd of the overall rod length from the end of the rod.

Resin rod With operation indicator

LED
WLNJ-2(55)LD-N

Neon lamp
WLNJ-2LE-N

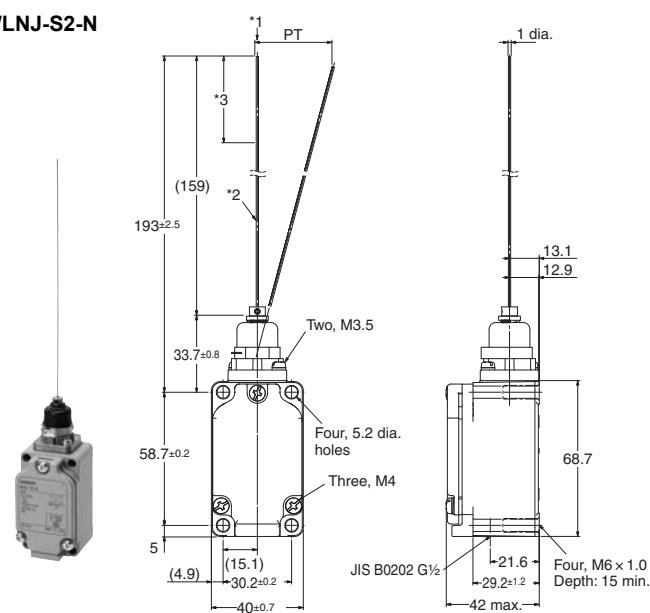


Note: The photo shows the WLNJ-2LD-N model.

*1. Do not operate the Switch in the direction of the axial center.
*2. Polyamide Resin Rod.
*3. The range for operation is 1/3rd of the overall rod length from the end of the rod.

Steel wire

WLNJ-S2-N

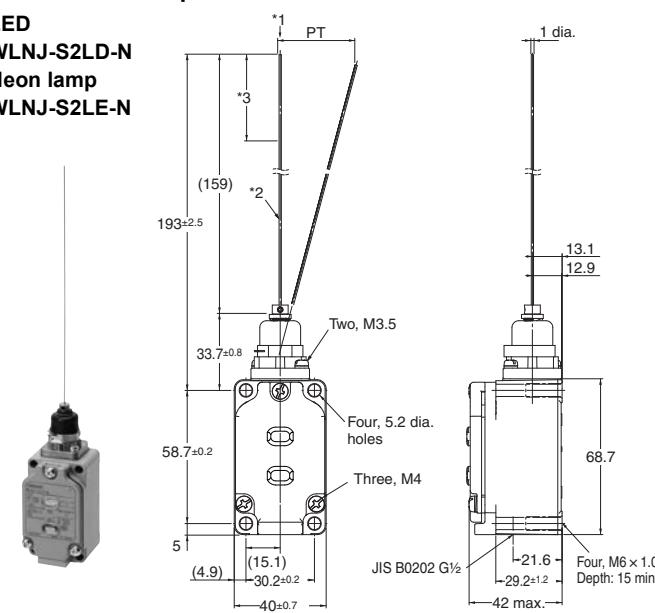


*1. Do not operate the Switch in the direction of the axial center.
*2. Stainless steel wire.
*3. The range for operation is 1/3rd of the overall wire length from the end of the wire.

Steel wire With operation indicator

LED
WLNJ-S2LD-N

Neon lamp
WLNJ-S2LE-N



Note: The photo shows the WLNJ-S2LD-N model.

*1. Do not operate the Switch in the direction of the axial center.
*2. Stainless steel coil spring.
*3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

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

Operating characteristics

Model	WLNJ-2(55)-N * WLNJ-2(55)LD-N * WLNJ-2LE-N *	WLNJ-S2-N * WLNJ-S2LD-N * WLNJ-S2LE-N *	
Operating force Pretravel	OF PT max. 40±20 mm	1.47 N 40±20 mm	0.28 N 40±20 mm

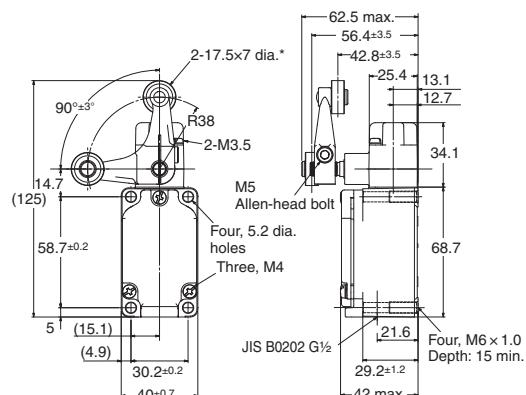
* These values are for the top end of the spring, rod, or wire.

Fork Lock Lever

Screw terminals

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

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



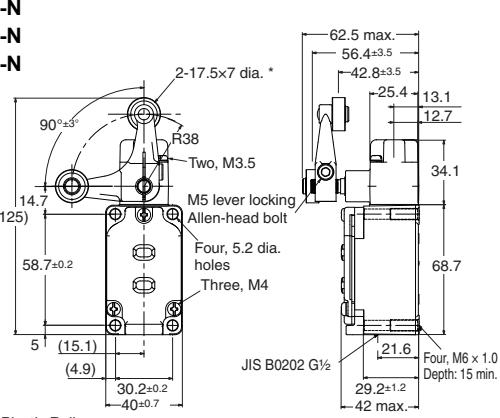
*Plastic Roller
 (The WLCA32-041-N to WLCA32-044-N have stainless sintered rollers.)

Note: The photo shows the WLCA32-43-N model.

With operation indicator

LED
WLCA32-41LD-N
WLCA32-43LD-N
Neon lamp
WLCA32-41LE-N
WLCA32-42LE-N
WLCA32-43LE-N

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



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

Note: The photo shows the WLCA32-43LD-N model.

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

Operating characteristics

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

MEMO

Environment-resistant Limit Switches WL-N/WLG

Wide range of available models to match your onsite environment

- Variety of head shapes, including Roller Lever, Plunger, and Flexible Rod Switches
- Select the optimum actuator model for the ambient operating temperature and operating environment for use in a wide range of applications
- Wiring specifications are available in Direct-wire cable types in addition to standard screw terminals types

 Be sure to read *Safety Precautions* on pages 83 to 88 and *Safety Precautions for All Limit Switches*.



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

Features

Select based on the operating temperature

- Ambient operating temperature of 5°C to 120°C: Heat-resistant type (WL□-TH-N/WL□-TH)
- Ambient operating temperature of -40°C to 40°C: Cold-resistant type (WL□-TC-N/WL□-TC)

Select based on the operating environment

- Outdoor use: Weather-resistant type (WL□-P1-N/WL□-P1)
- Chemicals and oils: Corrosion-resistant type (WL□-RP-N/WL□-RP)
- Coolant drops and mist: Coolant-resistant type (WL□-RP60-N/WL-RP60)
- Mist
 - Molded terminal 139 type (WL□-139-N/WL□-139)
 - The SC connector can be removed, so it is possible to use flexible conduit for the cable. (WL□-RP40-N/WL-RP40)
- Constant water drops and mist Molded terminal 140 type (WL□-140-N/WL□-140)
- Constant water drops or splattering cutting powder
 - Molded terminal 141 type (WL□-141-N/WL□-141)
 - Molded terminal 145 type (WL□-145-N/WL□-145)

Model Number Structure

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

Basic models

WL□ - □ □ □ □ □ □ -N
 (1) (2) (3) (4) (5) (6) (7)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
CA2	Roller lever	Roller lever: (R38 mm)	15±5°
CA2-2			25±5°
CA2-2N			20° max.
CA12	Adjustable Roller Lever (R25 to 89 mm)		15±5°
CA12-2			25±5°
CA12-2N			20° max.
D28	Plunger Actuators	Sealed top-roller plunger	1.7 mm max.
D2		Top-roller plunger	1.7 mm max.
SD		Horizontal plunger	2.8 mm max.
SD2		Horizontal-roller plunger	2.8 mm max.
CL	Flexible Rod Actuators	Adjustable rod lever (25 to 140mm)	15±5°
CL-2			25±5°
CL-2N			20° max.
NJ		Coil spring (6.5 dia.)	20±10mm
NJ-2		Flexible rod: Resin rod (8 dia.)	40±20mm

(2) Environment-resistant Specifications

Code	Specifications
None	Standard built-in switch
RP	Corrosion-resistant type
P1	Weather-resistant type

(3) Built-in Switch Specifications

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

(4) Temperature Specifications

Code	Specifications
None	Ambient operating temperature (-10 to +80°C)
TH	Ambient operating temperature (5 to 120°C) (Heat-resistant type) *
TC	Ambient operating temperature (-40 to +40°C) (Cold-resistant type) *

* (2) Environment-resistant Specifications Cannot be combined with symbols RP or P1.

(5) Wiring and Built-in Switch Specifications

Code	Terminal shape	Internal switch Specifications	Mold specifications
None	Screw terminals (Conduit size: G ¹ / ₂)	Refer to (3) Built-in Switch Specifications	None
139		Standard	Molded conduit opening and cover. (The cover cannot be removed.)
140			Molded conduit opening, cover, and cover mounting screws. (The cover cannot be removed.)
141			Molded conduit opening, cover, cover mounting screws, and head. (The cover cannot be removed, and head direction cannot be changed.)
145	Direct-wire cable	Airtight built-in switch	Molded conduit opening, cover, and cover mounting screws. (The cover cannot be removed.)
RP40			Molded conduit opening and cover. (The cover cannot be removed.) SC Connector can be removed, so it is possible to use flexible conduits for the cable.
RP60			Molded conduit opening, cover, and head mounting screws. (The cover cannot be removed, and head direction cannot be changed.)

Note: The standard cable length is 5 m.

(6) Indicator Specifications

Code	Specifications
None	No indicator
LD	LED (10 to 115 V AC/DC) *
LE	Neon lamp (125 to 250 VAC) *

* (2) Environment-resistant Specifications Cannot be combined with symbols RP or P1.

(4) Temperature Specifications Cannot be combined with symbols TH or TC.

(7) Lamp Wiring

Code	Specifications
None	No indicator
2	NC wiring (Lit when operating)
3	NO wiring (Lit when not operating)

High-sensitivity and High-precision Models**WLG**□ - □ □ □ □ □ □
(1) (2) (3) (4) (5) (6) (7)**(1) Actuator and Property Specifications**

Code	Actuator		Pretravel (PT)
2	Roller lever	Roller lever: R38 mm High-sensitivity Models	10° ⁺ 2° -1°
CA2		Roller lever: R38 mm High-precision Models	5° ⁺ 2° -0°
12		Adjustable Roller Lever (R25 to 89 mm) high-sensitivity model	10° ⁺ 2° -1°
L	Flexible rod	Adjustable rod lever (25 to 140 mm) high-sensitivity model	10° ⁺ 2° -1°

(2) Environment-resistant Specifications

Code	Specifications
None	Standard Built-in Switch
RP	Corrosion-resistant type
P1	Weather-resistant type

(3) Built-in Switch Specifications

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

(4) Temperature Specifications

Code	Specifications
None	Ambient operating temperature -10 to +80°C
TH	Ambient operating temperature (5 to 120°C) (Heat-resistant type) *
TC	Ambient operating temperature (-40 to +40°C) (Cold-resistant type) *

* (2) Environment-resistant Specifications Cannot be combined with symbols RP or P1.

(5) Wiring and Built-in Switch Specifications

Code	Terminal shape	Built-in switch specification	Mold specifications
None	Screw terminals (Conduit size: G1/2)	Refer to (3) Built-in Switch Specifications	None
139		Standard	Molded conduit opening and cover. (The cover cannot be removed.)
140			Molded conduit opening, cover, and cover mounting screws. (The cover cannot be removed.)
141		Airtight built-in switch	Molded conduit opening, cover, cover mounting screws, and head. (The cover cannot be removed, and head direction cannot be changed.)
RP60			Molded conduit opening, cover, and head mounting screws. (The cover cannot be removed, and head direction cannot be changed.)

Note: The standard cable length is 5 m.

(6) Indicator Specifications

Code	Specifications
None	No indicator
LD	LED (10 to 115 V AC/DC) *
LE	Neon lamp (125 to 250 V AC) *

* (2) Environment-resistant Specifications Symbols: RP, P1
(4) Temperature Specifications Cannot be combined with symbols TH or TC.

(7) Lamp Wiring

Code	Specifications
None	No indicator
2	NC wiring (Lit when operating)
3	NO wiring (Lit when not operating)

Ordering Information

Roller Lever

Apperance	Actuator	Terminal shape	Built-in switch specification/ Temperature Specifications	Pretravel (PT)	Without operation indicator		With operation indicator	
					Indicator		LED	
					Model	Wiring Specifications	Model	Model
 Rollerlever: R38 mm	 Screw terminals (Conduit size: G $\frac{1}{2}$)	Heat-resistant type	$15\pm 5^\circ$	WLCA2-TH-N	---	---	---	---
			$25\pm 5^\circ$	WLCA2-2TH-N	---	---	---	---
			20° max.	WLCA2-2NTH-N	---	---	---	---
			$10^\circ_{-1}^{+2}$	WLG2-TH	---	---	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-TH	---	---	---	---
		Cold-resistant type	$15\pm 5^\circ$	WLCA2-TC-N	---	---	---	---
			$25\pm 5^\circ$	WLCA2-2TC-N	---	---	---	---
			20° max.	WLCA2-2NTC-N	---	---	---	---
			$10^\circ_{-1}^{+2}$	WLG2-TC	---	---	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-TC	---	---	---	---
		Corrosion-resistant type	$15\pm 5^\circ$	WLCA2-RP-N	---	---	---	---
			$10^\circ_{-1}^{+2}$	WLG2-RP	---	---	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-RP	---	---	---	---
			$15\pm 5^\circ$	WLCA2-P1-N	---	---	---	---
			$10^\circ_{-1}^{+2}$	WLG2-P1	---	---	---	---
		Coolant-resistant type	$15\pm 5^\circ$	WLCA2-RP60-N	NC wiring	WLCA2-RP60LD2-N	---	---
			---	---	NO wiring	WLCA2-RP60LD3-N	---	---
			$25\pm 5^\circ$	WLCA2-2RP60-N	NC wiring	WLCA2-2RP60LD2-N	---	---
			$10^\circ_{-1}^{+2}$	WLG2-RP60	NO wiring	WLCA2-2RP60LD3-N	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-RP60	NC wiring	WLGCA2-RP60LD2	---	---
		Molded terminal -RP40	$15\pm 5^\circ$	WLCA2-RP40-N	NO wiring	WLGCA2-RP60LD3	---	---
			---	---	NC wiring	WLCA2-RP60LD2	---	---
			$15\pm 5^\circ$	WLCA2-139-N	NO wiring	WLCA2-139LD3-N	---	---
			$25\pm 5^\circ$	WLCA2-2139-N	NC wiring	WLCA2-2139LD2-N	---	---
			20° max.	WLCA2-2N139-N	NO wiring	WLCA2-2139LD3-N	---	---
		Molded terminal -139	$10^\circ_{-1}^{+2}$	WLG2-139	NC wiring	WLG2-139LD3	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-139	NO wiring	WLGCA2-139LD2	---	---
			$15\pm 5^\circ$	WLCA2-140-N	NC wiring	WLGCA2-139LD3	---	---
			20° max.	WLCA2-2N140-N	NO wiring	WLGCA2-140LD2 *	---	---
			$10^\circ_{-1}^{+2}$	WLG2-140	NC wiring	WLG2-140LD3 *	---	---
		Molded terminal -140	$15\pm 5^\circ$	WLCA2-141-N	NO wiring	WLG2-140LD2-N	---	---
			---	---	NC wiring	WLG2-141LD3-N	---	---
			$10^\circ_{-1}^{+2}$	WLG2-141	NO wiring	WLG2-141LD2	---	---
			$5^\circ_{-0}^{+2}$	WLGCA2-141	NC wiring	WLG2-141LD3	---	---
			---	---	NO wiring	WLGCA2-141LD3	---	---

* Ask your OMRON representative for details on Two-core switches.

Apperance	Actuator	Terminal shape	Built-in switch specification/ Temperature Specifications	Pretravel (PT)	Without operation indicator
					Model
	Adjustable roller lever (R25 to 89 mm)	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type	15±5°	WLCA12-TH-N
				25±5°	WLCA12-2TH-N
				20° max.	WLCA12-2NTH-N
				10° ^{+2°} _{-1°}	WLG12-TH
			Cold-resistant type	15±5°	WLCA12-TC-N
				25±5°	WLCA12-2TC-N
				20° max.	WLCA12-2NTC-N
				10° ^{+2°} _{-1°}	WLG12-TC
			Corrosion-resistant type	15±5°	WLCA12-RP-N
				10° ^{+2°} _{-1°}	WLG12-RP
			Weather-resistant type	15±5°	WLCA12-P1-N
				10° ^{+2°} _{-1°}	WLG12-P1
		Direct-wire cable	Coolant-resistant type	15±5°	WLCA12-RP60-N
			Molded terminal -139	15±5°	WLCA12-139-N
			Molded terminal -140	15±5°	WLCA12-140-N

Plunger

Apperance	Actuator	Terminal shape	Built-in switch specification/ Temperature Specifications	Pretravel (PT)	Without operation indicator
					Model
	Sealed top-roller plunger	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type	1.7 mm max.	WLD28-TH-N
			Cold-resistant type		WLD28-TC-N
			Corrosion-resistant type		WLD28-RP-N
			Coolant-resistant type		WLD28-RP60-N
		Direct-wire cable	Molded terminal -139		WLD28-139-N
			Molded terminal -140		WLD28-140-N
	Top-roller plunger	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type		WLD2-TH-N
		Direct-wire cable	Coolant-resistant type		WLD2-RP60-N
			Molded terminal -139		WLD2-139-N
	Horizontal plunger	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type	2.8 mm max.	WLSD-TH-N
			Cold-resistant type		WLSD-TC-N
			Corrosion-resistant type		WLSD-RP-N
		Direct-wire cable	Coolant-resistant type		WLSD-RP60-N
			Molded terminal -139		WLSD-139-N
	Horizontal-roller plunger	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type		WLSD2-TH-N
			Cold-resistant type		WLSD2-TC-N
			Corrosion-resistant type		WLSD2-RP-N
		Direct-wire cable	Coolant-resistant type		WLSD2-RP60-N
			Molded terminal -139		WLSD2-139-N
			Molded terminal -140		WLSD2-140-N

Flexible Rod

Apperance	Actuator	Terminal shape	Built-in switch specification/ Temperature Specifications	Pretravel (PT)	Without operation indicator
					Model
	Coil spring (6.5 dia.)	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type	20 [±] 10 mm	WLNJ-TH-N
			Cold-resistant type		WLNJ-TC-N
			Corrosion-resistant type		WLNJ-RP-N
		Direct-wire cable	Coolant-resistant type		WLNJ-RP60-N
			Molded terminal -139		WLNJ-139-N
			Molded terminal -140		WLNJ-140-N
	Resin rod (8 dia.)	Screw terminals (Conduit size: G ¹ / ₂)	Corrosion-resistant type	40 [±] 20 mm	WLNJ-2RP-N
			Coolant-resistant type	40 [±] 20 mm	WLNJ-2RP60-N
		Direct-wire cable	Molded terminal -139		WLNJ-2139-N
			Molded terminal -140		WLNJ-2140-N
	Adjustable rod lever (25 to 140 mm)	Screw terminals (Conduit size: G ¹ / ₂)	Heat-resistant type	15 [±] 5°	WLCL-TH-N
				25 [±] 5°	WLCL-2TH-N
				20° max.	WLCL-2NTH-N
				10 [°] _{1°} ^{±2°}	WLGL-TH
			Cold-resistant type	15 [±] 5°	WLCL-TC-N
				25 [±] 5°	WLCL-2TC-N
				20° max.	WLCL-2NTC-N
		Corrosion-resistant type	10 [°] _{1°} ^{±2°}	10 [°] _{1°} ^{±2°}	WLGL-TC
				15 [±] 5°	WLCL-RP-N
				10 [°] _{1°} ^{±2°}	WLGL-RP
		Weather-resistant type	15 [±] 5°	15 [±] 5°	WLCL-P1-N
				10 [°] _{1°} ^{±2°}	WLGL-P1
				15 [±] 5°	WLCL-RP60-N
		Direct-wire cable	Coolant-resistant type	15 [±] 5°	WLCL-139-N
			Molded terminal -139	15 [±] 5°	WLCL-140-N
			Molded terminal -140	15 [±] 5°	WLCL-140-N

Specifications

Ratings

Screw terminals/Direct-wire cable

Without Operation Indicator

Basic models (WL-N)

Ratings		Non-inductive load (A)			Inductive load (A)		
		Basic models (WL-N)		Basic models (WL-N)			
		Resistive load	Lamp load	Inductive load	Motor load		
Voltage (V)		NC	NO	NC	NO	NC	NO
AC	125	10		3	1.5	10	5
	250	10		2	1	10	3
	500	10		1.5	0.8	3	1.5
DC	8	10		6	3	10	6
	14	10		6	3	10	6
	30	6		4	3	6	4
	125	0.8		0.2	0.2	0.8	0.2
	250	0.4		0.1	0.1	0.4	0.1

High-sensitivity and High-precision models (WLG)

Ratings		Non-inductive load (A)	
		High-sensitivity and High-precision models (WLG)	
		Resistive load	
Voltage (V)		NC	NO
AC	125		5
	250		5
DC	125		0.4
	250		0.2

With Operation Indicator (LED)

Basic models (WL-N)

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

High-sensitivity and High-precision models (WLG)

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

With Operation Indicators (Neon Lamps)

Basic models (WL-N)

Ratings		Non-inductive load (A)			Inductive load (A)		
		Basic models (WL-N)			Basic models (WL-N)		
		Resistive load	Lamp load	Inductive load	Motor load		
Voltage (V)		NC	NO	NC	NO	NC	NO
AC	125	10		3	1.5	10	5
	250	10		2	1	10	3

High-sensitivity and High-precision models (WLG)

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

Note: 1. The above figures are for steady-state currents.

2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. A lamp load has an inrush current of 10 times the steady-state current.
4. A motor load has an inrush current of 6 times the steady-state current.

Allowable Inrush Current/ Minimum applicable load

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

Operation Indicator

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

Characteristics

Operating characteristics type		Basic models (WL-N)	High-sensitivity and High-precision models (WLG)
Permissible operating frequency	Mechanical	120 operations/minute	
	Electrical	30 operations/minute	
Rated frequency		50/60 Hz	
Permissible operating speed		1 mm/s to 1 m/s (in case of WLCA2-N)	
Insulation resistance		100 MΩ min. (at 500 VDC)	
Contact resistance		25 mΩ or less (default value, built-in switch only)	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude *2	
Shock	Destruction	1,000 m/s ² max.	
	Malfunction	300m/s ² max. *2	
Durability *1	Mechanical	15,000,000 operations min.	10,000,000 operations min. *3
	Electrical	750,000 operations min. (3 A at 250 VAC, resistive load) *4	500,000 operations min. (3 A at 250 VAC, resistive load) *4
Ambient operating temperature		-10 to +80°C (with no icing) *5	
Ambient operating humidity		35 to 95%RH	
Degree of protection *6		IP67 (EN60947-5-1)	
Weight		Approx. 250 g (for WLCL-TH-N)	Approx. 250 g (for WLCL-TH-N)

Note: The above figures are initial values.

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

*2. Except Switches with Flexible Rod Actuators.

*3. 500,000 operations min. for Weather-resistant models.

*4. In case of models without operation indicators.

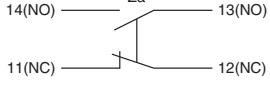
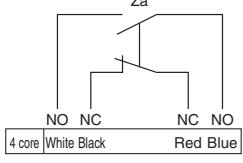
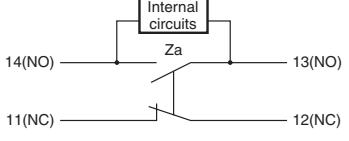
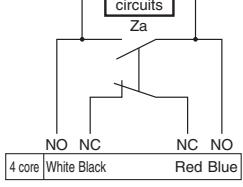
*5. For low-temperature models this is -40°C to +40°C (with no icing). For heat-resistant models the range is +5°C to 120°C.

*6. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.

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

* Except models with operation indicators.

Circuit Configuration/Terminal Connection Diagram

Operating characteristics type		Basic models (WL-N)/High-sensitivity and high-precision models (WLG)	
Wiring Specifications		Screw terminals	Direct-wire cable
Without operation indicator			
Operation indicator (Light-ON when Not Operating *)			

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

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

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

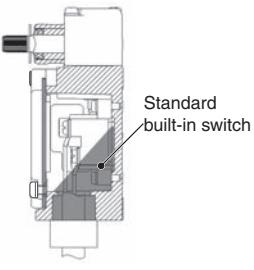
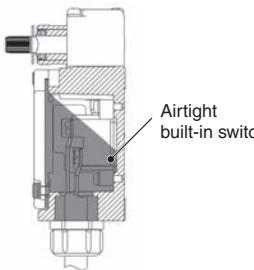
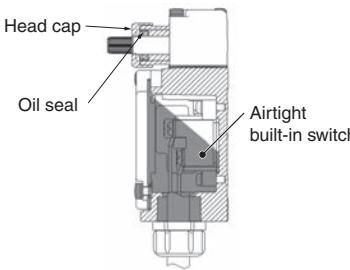
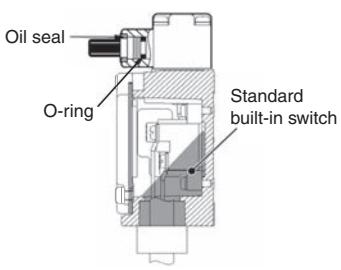
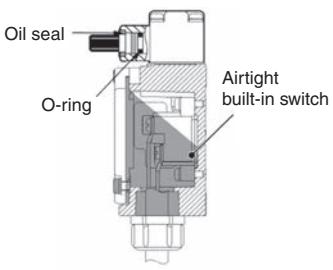
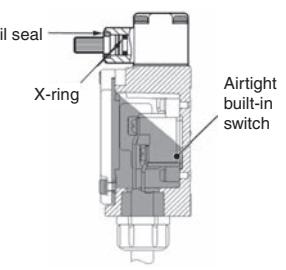
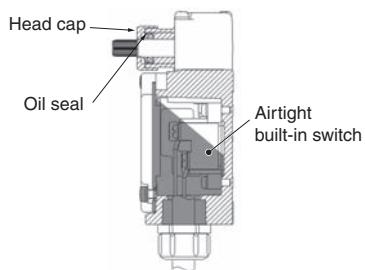
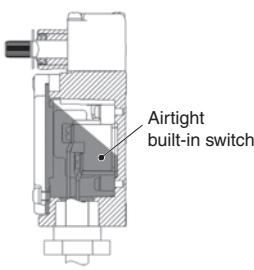
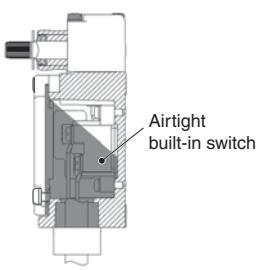
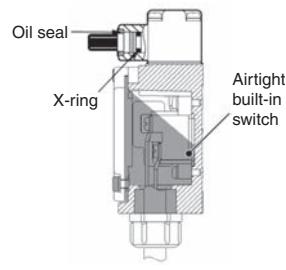
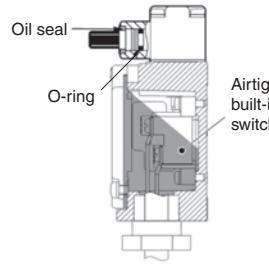
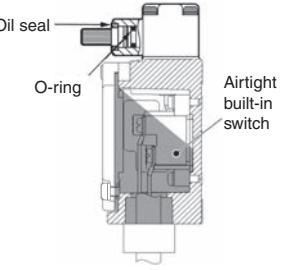
The above shows details of the switch interior. External wires (external resistances) are not shown. For details, refer to *Operation* on page 19.

Structure and Nomenclature

Mold Specifications



: Molded parts

Prevent entry of foreign objects from conduit WL□-139-N	Prevent entry of foreign objects from conduit cover WL□-140-N	Prevent entry of foreign objects from head and conduit cover WL□-141-N
 <p>Standard built-in switch</p> <p>WL□-139</p>	 <p>Airtight built-in switch</p> <p>WL□-140</p>	 <p>Head cap</p> <p>Oil seal</p> <p>Airtight built-in switch</p> <p>WL□-141</p>
 <p>Oil seal</p> <p>O-ring</p> <p>Standard built-in switch</p> <p>WL□-139</p>	 <p>Oil seal</p> <p>O-ring</p> <p>Airtight built-in switch</p> <p>WL□-140</p>	 <p>Oil seal</p> <p>X-ring</p> <p>Airtight built-in switch</p> <p>WL□-141</p>
Prevent entry of metal powder from head and conduit WL□-145-N	Prevent entry of metal powder from conduit cover WL□-RP40-N	Prevent entry of metal powder from head and conduit cover WL□-RP60-N
 <p>Head cap</p> <p>Oil seal</p> <p>Airtight built-in switch</p> <p>WL□-145</p>	 <p>Airtight built-in switch</p> <p>WL□-RP40</p>	 <p>Airtight built-in switch</p> <p>WL□-RP60</p>
 <p>Oil seal</p> <p>X-ring</p> <p>Airtight built-in switch</p> <p>WL□-145</p>	 <p>Oil seal</p> <p>O-ring</p> <p>Airtight built-in switch</p> <p>WL□-RP40</p>	 <p>Oil seal</p> <p>O-ring</p> <p>Airtight built-in switch</p> <p>WL□-RP60</p>

Model	Cable specifications	Connector specifications
WL□-139-N WL□-139	Standard 5-m VCT cable. Finished outer diameter: 11.5 mm, 4 conductors.	Resin cap
WL□-140-N WL□-140 WL□-141-N WL□-141 WL□-145-N WL□-145		Metal connector
WL□-RP40-N WL□-RP40	Standard 5-m VCT cable, with high flexibility and good anti-oil properties attached. Finished outer diameter: 11.5 mm, 4 conductors.	Resin connector *1
WL□-RP60-N WL□-RP60		Resin cap

*1. The connector can be removed, so it is possible to use flexible conduit for the cable.

Dimensions

(Unit: mm)

Roller Lever

Screw terminals

Roller lever R38

Heat-resistant type

WLCA2-TH-N

WLCA2-2TH-N

WLCA2-2NTH-N

Cold-resistant type

WLCA2-TC-N

WLCA2-2TC-N

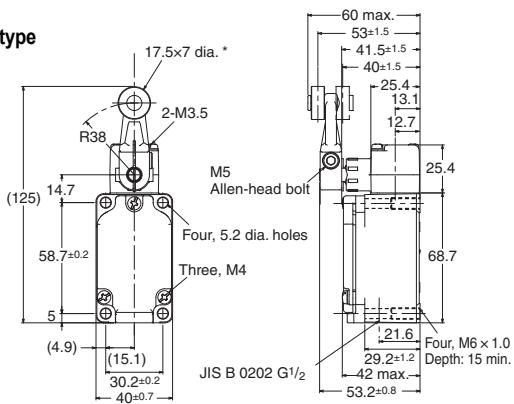
WLCA2-2NTC-N

Corrosion-resistant type

WLCA2-RP-N

Weather-resistant type

WLCA2-P1-N



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

Roller lever R38

Heat-resistant type

WLG2-TH

WLGCA2-TH

Cold-resistant type

WLG2-TC

WLGCA2-TC

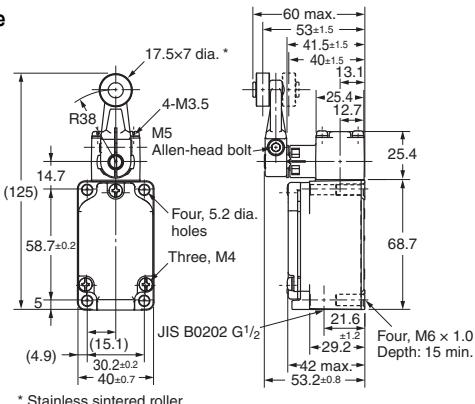
Corrosion-resistant type

WLG2-RP

WLGCA2-RP

Weather-resistant type

WLG2-P1



Note: The photo shows the WLG2-TH model.

Operating characteristics

	Model	WLCA2-TH-N WLCA2-TC-N WLCA2-RP-N WLCA2-P1-N	WLCA2-2TH-N WLCA2-2TC-N	WLCA2-2NTH-N WLCA2-2NTC-N	WLG2-TH WLG2-TC WLG2-RP WLG2-P1	WLGCA2-TH WLGCA2-TC WLGCA2-RP
Operating force	OF max.	13.34 N	13.34 N	13.34 N	9.81 N	13.34 N
Release force	RF min.	1.18 N	1.18 N	1.18 N	0.98 N	1.47 N
Pretravel	PT	15±5°	25±5°	20° max.	10° ^{±2°}	5° ^{±2°}
Overtravel	OT min.	70°	60°	70°	65°	40°
Movement Differential	MD max.	12°	16°	10°	7°	3°

Direct-wire cable**Roller lever R38****Coolant-resistant type**

WLCA2-RP60-N

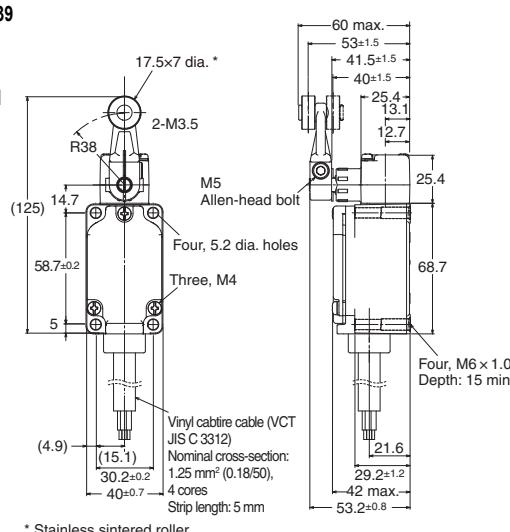
WLCA2-2RP60-N

Molded terminal-139

WLCA2-139-N

WLCA2-2139-N

WLCA2-2N139-N



* Stainless sintered roller

Note: The photo shows the WLCA2-139-N model.

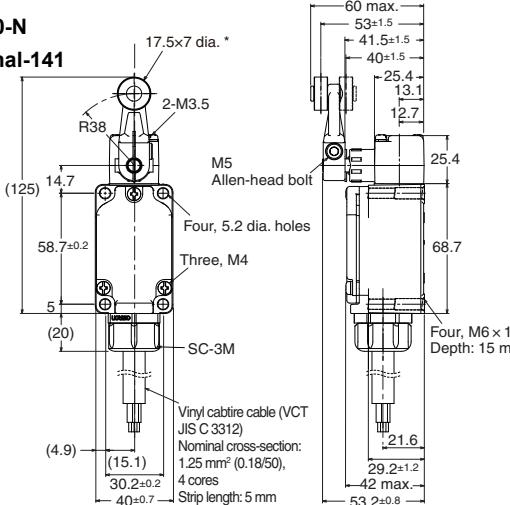
Roller lever R38**Molded terminal-140**

WLCA2-140-N

WLCA2-2N140-N

Molded terminal-141

WLCA2-141-N



* Stainless sintered roller

Note: The photo shows the WLCA2-141-N model.

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

Model	WLCA2-RP60-N WLCA2-RP60LD2-N WLCA2-RP60LD3-N WLCA2-139-N WLCA2-139LD2-N WLCA2-139LD3-N WLCA2-140-N WLCA2-141-N WLCA2-141LD2-N WLCA2-141LD3-N	WLCA2-2N139-N WLCA2-2N140-N	WLCA2-2RP60-N WLCA2-2RP60LD2-N WLCA2-2RP60LD3-N WLCA2-2139-N WLCA2-2139LD2-N WLCA2-2139LD3-N
Operating force	OF max.	13.34 N	13.34 N
Release force	RF min.	1.18 N	1.18 N
Pretravel	PT	15 \pm 5°	20° max.
Overtravel	OT min.	70°	70°
Movement Differential	MD max.	12°	10°

Roller lever R38 With operation indicator**Coolant-resistant specifications**

WLCA2-RP60LD2-N

WLCA2-RP60LD3-N

WLCA2-2RP60LD2-N

WLCA2-2RP60LD3-N

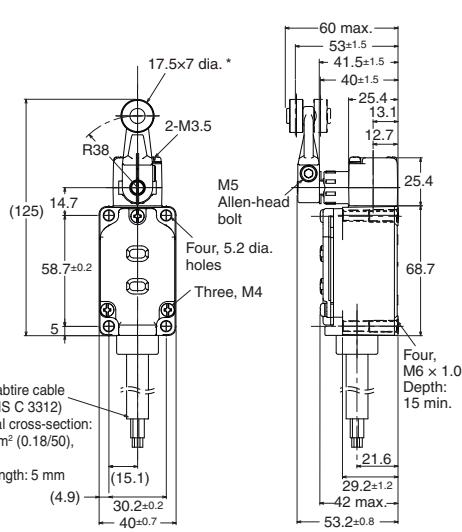
Molded terminal -139

WLCA2-139LD2-N

WLCA2-139LD3-N

WLCA2-2139LD2-N

WLCA2-2139LD3-N



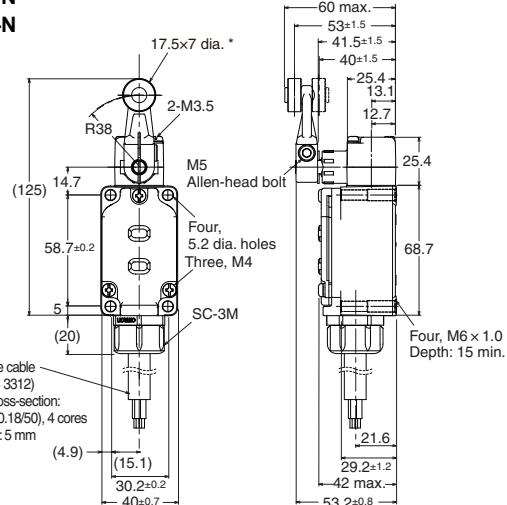
* Stainless sintered roller

Note: The photo shows the WLCA2-RP60LD3-N model.

Roller lever R38 With operation indicator**Molded terminal -141**

WLCA2-141LD2-N

WLCA2-141LD3-N



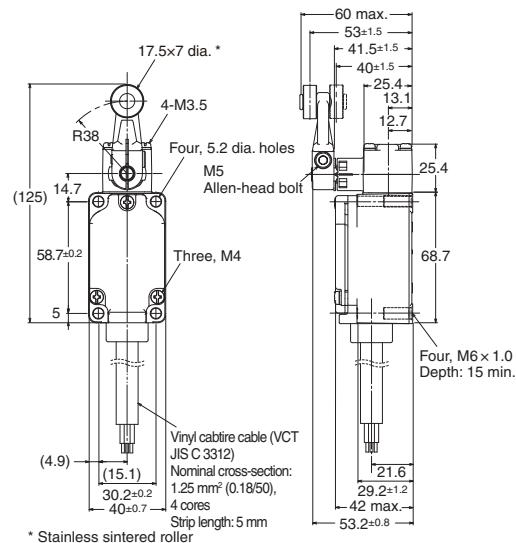
* Stainless sintered roller

Note: The photo shows the WLCA2-141LD2-N model.

Roller lever R38

Coolant-resistant type
WLG2-RP60

Molded terminal -139
WLG2-139



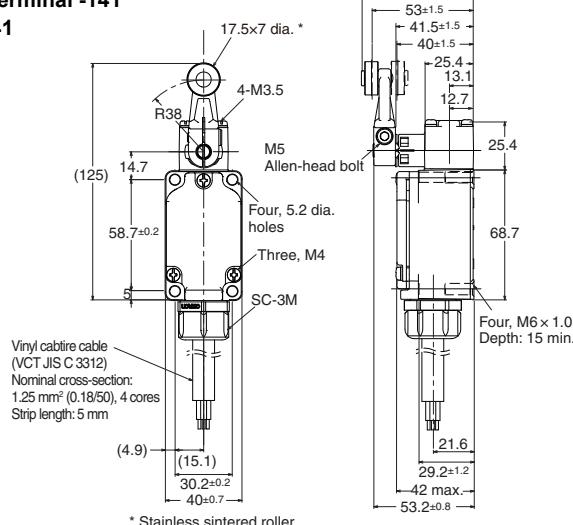
* Stainless sintered roller

Note: The photo shows the WLG2-139 model.

Roller lever R38

Molded terminal -140
WLG2-140

Molded terminal -141
WLG2-141



* Stainless sintered roller

Note: The photo shows the WLG2-141 model.

Roller lever R38 With operation indicator

Coolant-resistant specifications

WLG2-RP60LD2

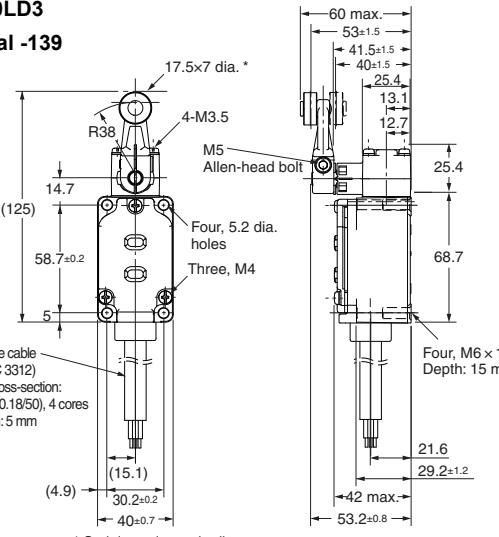
WLG2-RP60LD3

WLGCA2-RP60LD2

WLGCA2-RP60LD3

Molded terminal -139

WLG2-139LD3



* Stainless sintered roller

Note: The photo shows the WLG2-139LD3 model.

Roller lever R38 With operation indicator

Molded terminal -140

WLG2-140LD2

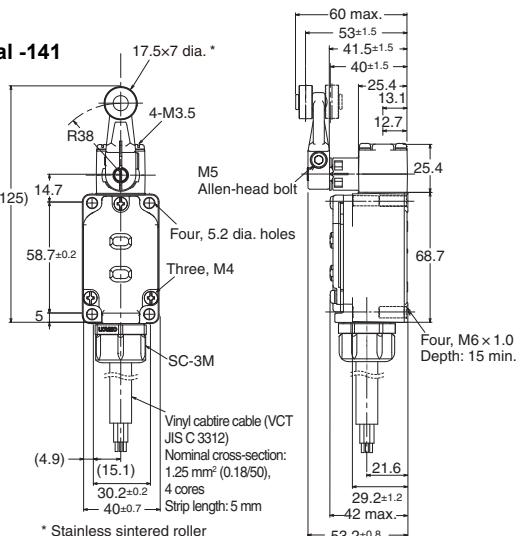
WLG2-140LD3

Molded terminal -141

WLG2-141LD2

WLG2-141LD3

WLGCA2-141LD3



* Stainless sintered roller

Note: The photo shows the WLG2-141LD2 model.

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

Operating characteristics

Model	WLG2-139 WLG2-140 WLG2-141 WLG2-RP60 WLG2-RP60LD2 WLG2-RP60LD3 WLG2-139LD3 WLG2-140LD2 WLG2-140LD3 WLG2-141LD2 WLG2-141LD3 WLGCA2-RP60LD2 WLGCA2-RP60LD3 WLGCA2-141LD3
Operating force OF	max. 9.81 N
Release force RF	min. 0.98 N
Pretravel PT	$10^{\circ} \pm 2^{\circ}$
Overtravel OT	min. 65°
Movement Differential MD	max. 7°
	13.34 N 1.47 N $5^{\circ} \pm 2^{\circ}$ 40° 3°

Screw terminals

Adjustable Roller Lever (R25 to 89 mm)

Heat-resistant type

WLCA12-TH-N

WLCA12-2TH-N

WLCA12-2NTH-N

Cold-resistant type

WLCA12-TC-N

WLCA12-2TC-N

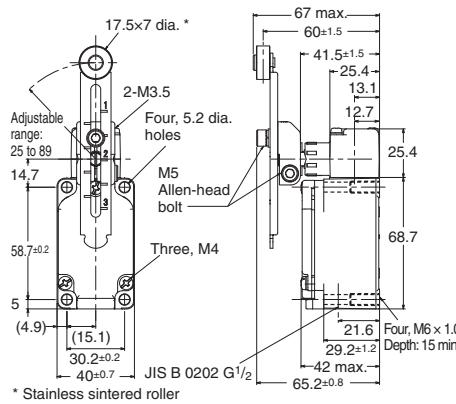
WLCA12-2NTC-N

Weather-resistant type

WLCA12-P1-N

Corrosion-resistant type

WLCA12-RP-N



Note: The photo shows the WLCA12-TH-N model.

Adjustable Roller Lever (R25 to 89 mm)

Heat-resistant type

WLG12-TH

Cold-resistant type

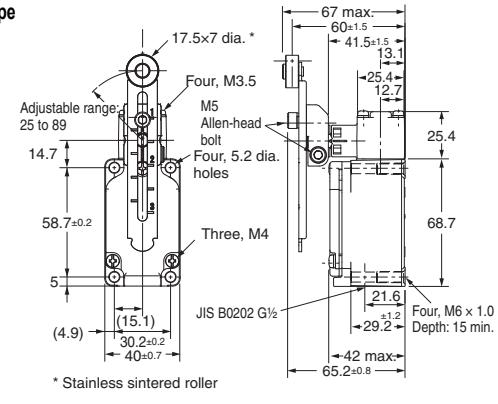
WLG12-TC

Weather-resistant type

WLG12-P1

Corrosion-resistant type

WLG12-RP



Note: The photo shows the WLG12-TH model.

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

Operating characteristics

Model	WLCA12-TH-N WLCA12-TC-N WLCA12-P1-N WLCA12-RP-N	WLCA12-2TH-N WLCA12-2TC-N	WLCA12-2NTH-N WLCA12-2NTC-N	WLG12-TH WLG12-TC WLG12-P1 WLG12-RP
Operating force OF max.	OF max.	13.34 N	13.34 N	13.34 N
Release force RF min.	RF min.	1.18 N	1.18 N	1.18 N
Pretravel PT	PT	15 \pm 5°	25 \pm 5°	20° max.
Overtravel OT min.	OT min.	70°	60°	70°
Movement Differential MD max.	MD max.	12°	16°	10°

Note: The operating characteristics are measured at the lever length of 38 mm.

Direct-wire cable

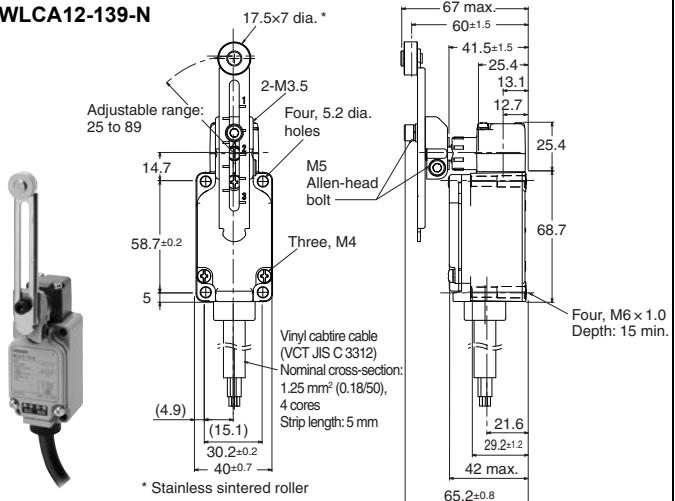
Adjustable Roller Lever (R25 to 89 mm)

Coolant-resistant specifications

WLCA12-RP60-N

Molded terminal -139

WLCA12-139-N



Note: The photo shows the WLCA12-139-N model.

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

Operating characteristics

		Model	WLCA12-RP60-N WLCA12-139-N WLCA12-140-N WLCA12-141-N
Operating force	OF	max.	13.34 N
Release force	RF	min.	1.18 N
Pretravel	PT		15±5°
Overtravel	OT	min.	70°
Movement Differential	MD	max.	12°

Note: The operating characteristics are measured at the lever length of 38 mm.

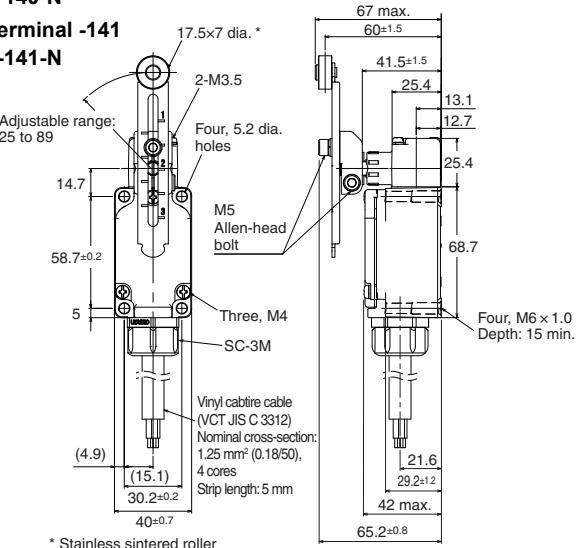
Adjustable Roller Lever (R25 to 89 mm)

Molded terminal -140

WLCA12-140-N

Molded terminal -141

WLCA12-141-N



Note: The photo shows the WLCA12-141-N model.

Plunger Actuators

Screw terminals

Sealed top-roller plunger

Heat-resistant specifications

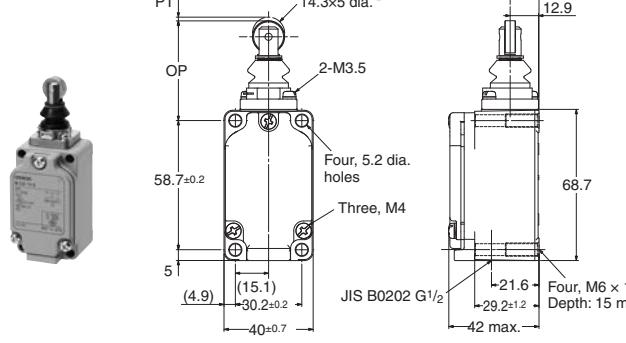
WLD28-TH-N

Cold-resistant specifications

WLD28-TC-N

Corrosion-resistant specifications

WLD28-RP-N

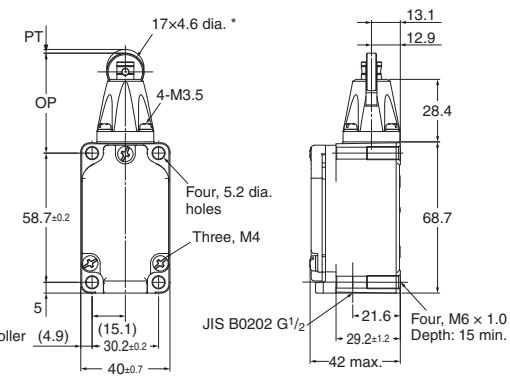


Note: The photo shows the WLD28-TH-N model.

Top-roller plunger

Heat-resistant specifications

WLD2-TH-N



Horizontal plunger

Heat-resistant specifications

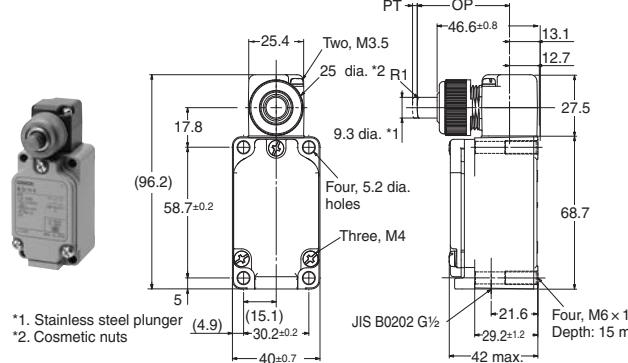
WLSD-TH-N

Cold-resistant specifications

WLSD-TC-N

Corrosion-resistant specifications

WLSD-RP-N



Note: The photo shows the WLSD-TH-N model.

Horizontal-roller plunger

Heat-resistant specifications

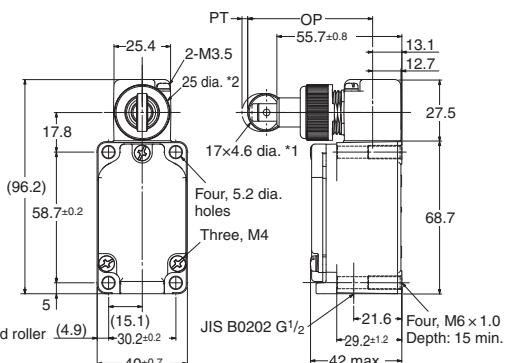
WLSD2-TH-N

Cold-resistant specifications

WLSD2-TC-N

Corrosion-resistant specifications

WLSD2-RP-N



Note: The photo shows the WLSD2-TH-N model.

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

Operating characteristics

	Model	WLD28-TH-N WLD28-TC-N WLD28-RP-N	WLD2-TH-N	WLSD-TH-N WLSD-TC-N WLSD-RP-N	WLSD2-TH-N WLSD2-TC-N WLSD2-RP-N
Operating force	OF	max.	16.67 N	26.67 N	40.03 N
Release force	RF	min.	4.41 N	8.92 N	8.89 N
Pretravel	PT	max.	1.7 mm	1.7 mm	2.8 mm
Overtravel	OT	min.	5.6 mm	5.6 mm	6.4 mm
Movement Differential	MD	max.	1 mm	1 mm	1 mm
Operating position	OP		44±0.8 mm	44±0.8 mm	40.6±0.8 mm
Total travel position	TPP	max.	39.5 mm	39.5 mm	---

Direct-wire cable

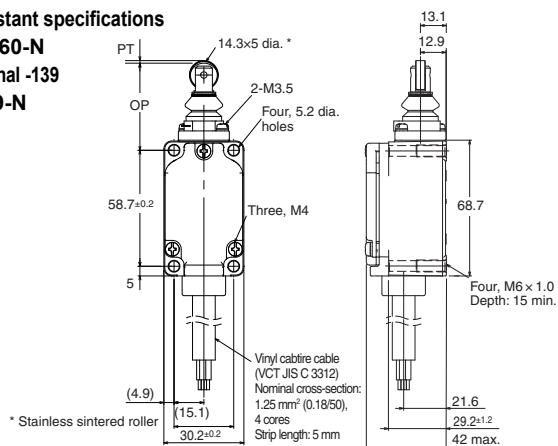
Sealed top-roller plunger

Coolant-resistant specifications

WLD28-RP60-N

Molded terminal -139

WLD28-139-N

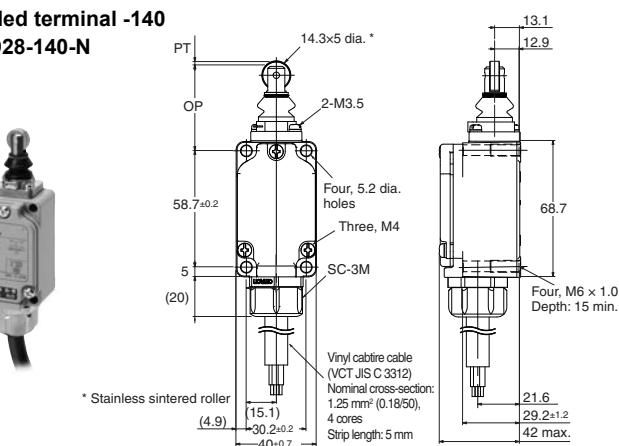


Note: The photo shows the WLD28-139-N model.

Sealed top-roller plunger

Molded terminal -140

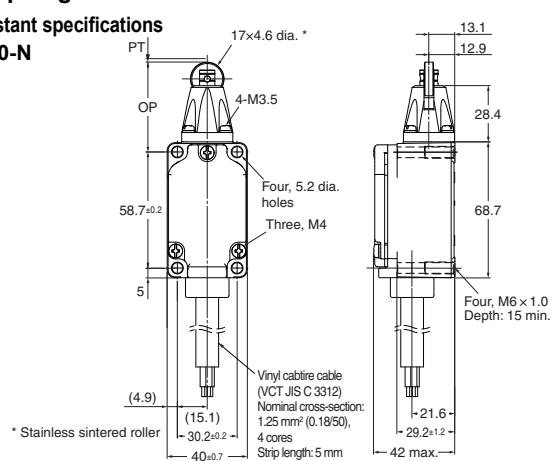
WLD28-140-N



Top-roller plunger

Coolant-resistant specifications

WLD2-RP60-N

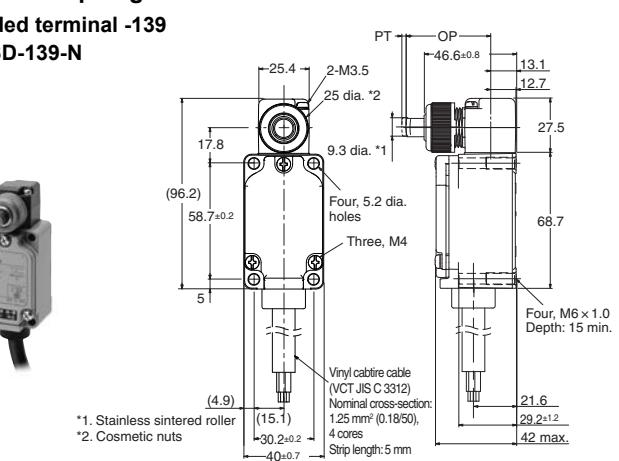


Horizontal plunger

Horizontal plunger

Molded terminal -139

WLSD-139-N



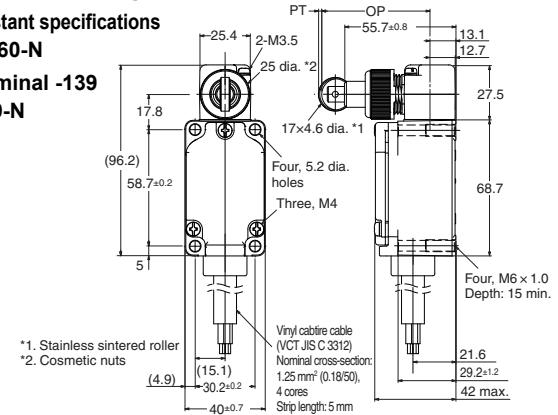
Horizontal-roller plunger

Coolant-resistant specifications

WLSD2-RP60-N

Molded terminal -139

WLSD2-139-N



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

Operating characteristics

	Model	WLD28-RP60-N WLD28-139-N WLD28-140-N	WLD2-RP60-N	WLSD-139-N	WLSD2-RP60-N WLSD2-139-N WLSD2-140-N
Operating force	OF	max.	16.67 N	26.67 N	40.03 N
Release force	RF	min.	4.41 N	8.92 N	8.89 N
Pretavel	PT	max.	1.7 mm	1.7 mm	2.8 mm
Overtravel	OT	min.	5.6 mm	5.6 mm	6.4 mm
Movement Differential	MD	max.	1 mm	1 mm	1 mm
Operating position	OP	44 ± 0.8 mm	44 ± 0.8 mm	40.6 ± 0.8 mm	54.2 ± 0.8 mm
Total travel position	TPP	max.	39.5 mm	39.5 mm	---

Flexible Rod

Screw terminals

Coil spring

Heat-resistant specifications

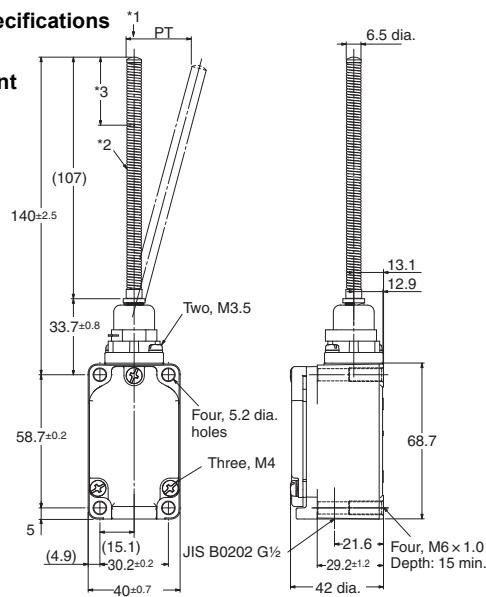
WLNJ-TH-N

Cold-resistant specifications

WLNJ-TC-N

Corrosion-resistant specifications

WLNJ-RP-N



Note: The photo shows the WLNJ-TH-N model.

*1. Do not operate the Switch in the direction of the axial center.

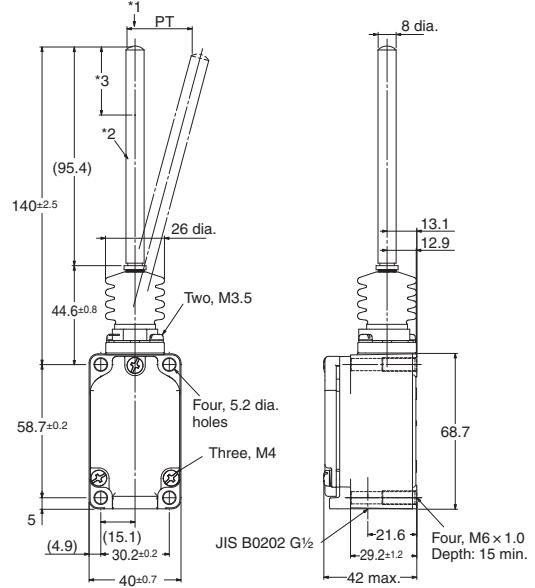
*2. Stainless steel coil spring.

*3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

Resin rod

Corrosion-resistant specifications

WLNJ-2RP-N



*1. Do not operate the Switch in the direction of the axial center.

*2. Stainless steel coil spring.

*3. The range for operation is 1/3rd of the overall spring length from the end of the spring.

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

Operating characteristics

Model	WLNJ-TH-N *	WLNJ-TC-N *	WLNJ-RP-N *
Operating force Pretravel	OF PT max.	1.47 N 20±10 mm	1.47 N 40±20 mm

* These values are for the top end of the spring, rod, or wire.

Spatter-prevention Switches

WL-N/WLG

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

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



Be sure to read *Safety Precautions* on pages 83 to 88 and *Safety Precautions for All Limit Switches*.



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

Features

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

Actuator

Roller, Roller Axis

Using stainless steel prevents spatter from adhering.

Operating Lever

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

Roller Lever Bolt

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

The lack of gap prevents spatter powder from clogging.

Head Cap

Using fluororesin prevents spatter * from adhering.

* Spatter means the zinc powder produced when welding.

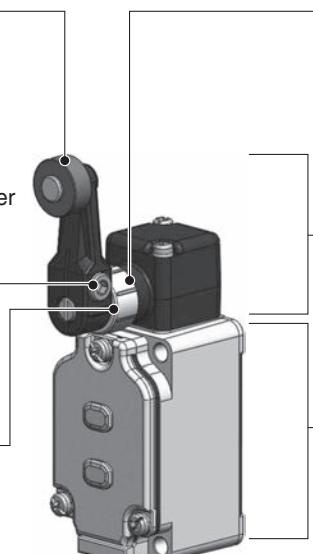
Adhering spatter to the Limit Switch may cause malfunction of lever or lamp cover.

Head

Main unit

Screws

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



Model Number Structure

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

Basic models

WL□ - □□□ S□ -N
 (1) (2) (3) (4) (5)

(1) Actuator and Property Specifications

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

(2) Built-in Switch Specifications

Code	Specifications	
None	Standard built-in switch	

(3) Indicator Specifications

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

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

(4) Lever Type *

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

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

(5) Wiring Specifications

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

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

High-sensitivity and High-precision Models

WLG□ - □□□ S□
 (1) (2) (3) (4) (5)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
2	Roller lever	Roller lever: R38 mm High-sensitivity Models	10° ^{+2°} _{-1°}
CA2	Roller lever	Roller lever: R38 mm High-precision Models	5° ^{+2°} _{0°}

(2) Built-in Switch Specifications

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

(3) Indicator Specifications

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

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

(4) Lever Type *

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

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

(5) Wiring Specifications

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

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

Ordering Information

Roller Lever

Standard built-in switch

Screw terminals

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

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

Pre-wired Connectors

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

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

Airtight Built-in Switch

Pre-wired Connector types

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

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

Plunger Actuators

Standard built-in switch

Screw terminals

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

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

Pre-wired Connectors

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

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

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

Specifications

Ratings

Screw terminals

With Operation Indicator

Basic models (WL-N)

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

High-sensitivity and High-precision models (WLG)

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

With Operation Indicators (Neon Lamps)

Basic models (WL-N)

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

High-sensitivity and High-precision models (WLG)

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

Note: 1. The above figures are for steady-state currents.

2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).

3. A lamp load has an inrush current of 10 times the steady-state current.

4. A motor load has an inrush current of 6 times the steady-state current.

Allowable Inrush Current/Minimum Applicable Load

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

Operation Indicator

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

Pre-wired connectors

Connector DC Specifications: With Operation Indicators (LEDs)

Basic models (WL-N)

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

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.

Minimum Applicable Load

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

Operation Indicator

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

Characteristics

Operating characteristics type		Basic models (WL-N)		High-sensitivity and High-precision models (WLG)	
Permissible operating frequency	Mechanical	120 operations/minute			
	Electrical	30 operations/minute			
Rated frequency		50/60 Hz			
Permissible operating speed		1 mm/s to 1 m/s (for WLCA2-LDS-N)			
Insulation resistance		100 MΩ min. (at 500 VDC)			
Contact resistance		25 mΩ max. (initial value for the built-in switch)			
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude			
Shock	Destruction	1,000 m/s ² max.			
	Malfunction	300 m/s ² max.			
Durability *1	Mechanical	15,000,000 operations min.		10,000,000 operations min.	
	Electrical	750,000 operations min. (3 A at 115 VAC, resistive load) *2		500,000 operations min. (3 A at 115 VAC, resistive load) *2	
Ambient operating temperature		-10 to +80°C (with no icing)			
Ambient operating humidity		35 to 95%RH			
Degree of protection *3		IP67 (EN60947-5-1)			
Weight		Approx. 255 g (in case of WLCA2-LDS-N)		Approx. 270 g (in case of WLGCA2-LDS)	

Note: The above figures are initial values.

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

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

*3. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.

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

* Excluding those with operation indicators.

High-sensitivity and High-precision models (WLG)

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

Terminal Connection Diagram

Operating characteristics type	Basic models (WL-N)																													
Wiring Specifications	Screw terminals	Direct-wire connector and Pre-wired Connector Models																												
Without operation indicator		DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>③</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>①</td></tr> <tr><td>---</td><td>③</td><td>②</td><td>---</td></tr> <tr><td>4 core</td><td>④ ①</td><td>② ③</td><td></td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	④	---	---	③	④	---	---	①	---	③	②	---	4 core	④ ①	② ③									
NO	NC	NC	NO																											
④	---	---	③																											
④	---	---	①																											
---	③	②	---																											
4 core	④ ①	② ③																												
With Operation Indicator (Light-ON When Not Operating *)		DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>③</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>①</td></tr> <tr><td>---</td><td>③</td><td>②</td><td>---</td></tr> <tr><td>4 core</td><td>④ ①</td><td>② ③</td><td></td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	④	---	---	③	④	---	---	①	---	③	②	---	4 core	④ ①	② ③									
NO	NC	NC	NO																											
④	---	---	③																											
④	---	---	①																											
---	③	②	---																											
4 core	④ ①	② ③																												
Operating characteristics type	High-sensitivity and High-precision Switches (WLG)																													
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Without operation indicator		DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>③</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>①</td></tr> <tr><td>---</td><td>③</td><td>②</td><td>---</td></tr> <tr><td>2 core</td><td>④</td><td>② ③</td><td></td></tr> <tr><td>3 core</td><td>④</td><td>② ③</td><td></td></tr> <tr><td>4 core</td><td>④ ①</td><td>② ③</td><td></td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	④	---	---	③	④	---	---	①	---	③	②	---	2 core	④	② ③		3 core	④	② ③		4 core	④ ①	② ③	
NO	NC	NC	NO																											
④	---	---	③																											
④	---	---	①																											
---	③	②	---																											
2 core	④	② ③																												
3 core	④	② ③																												
4 core	④ ①	② ③																												
With Operation indicator (Light-ON when Not Operating *)		DC <table border="1"> <tr><td>NO</td><td>NC</td><td>NC</td><td>NO</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>③</td></tr> <tr><td>④</td><td>---</td><td>---</td><td>①</td></tr> <tr><td>---</td><td>③</td><td>②</td><td>---</td></tr> <tr><td>2 core</td><td>④</td><td>② ③</td><td></td></tr> <tr><td>3 core</td><td>④</td><td>② ③</td><td></td></tr> <tr><td>4 core</td><td>④ ①</td><td>② ③</td><td></td></tr> </table> <p>①②③④ indicate the connector pin number.</p>	NO	NC	NC	NO	④	---	---	③	④	---	---	①	---	③	②	---	2 core	④	② ③		3 core	④	② ③		4 core	④ ①	② ③	
NO	NC	NC	NO																											
④	---	---	③																											
④	---	---	①																											
---	③	②	---																											
2 core	④	② ③																												
3 core	④	② ③																												
4 core	④ ①	② ③																												

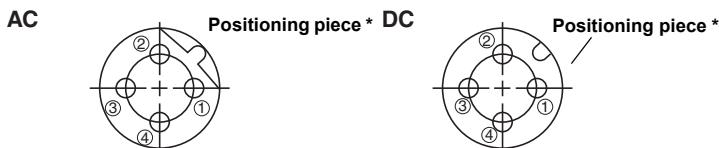
Note: Leakage current from indicator circuit may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current.

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

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

The above shows details of the switch interior. External wires (external resistances) are not shown. For details, refer to *Operation* on page 19.

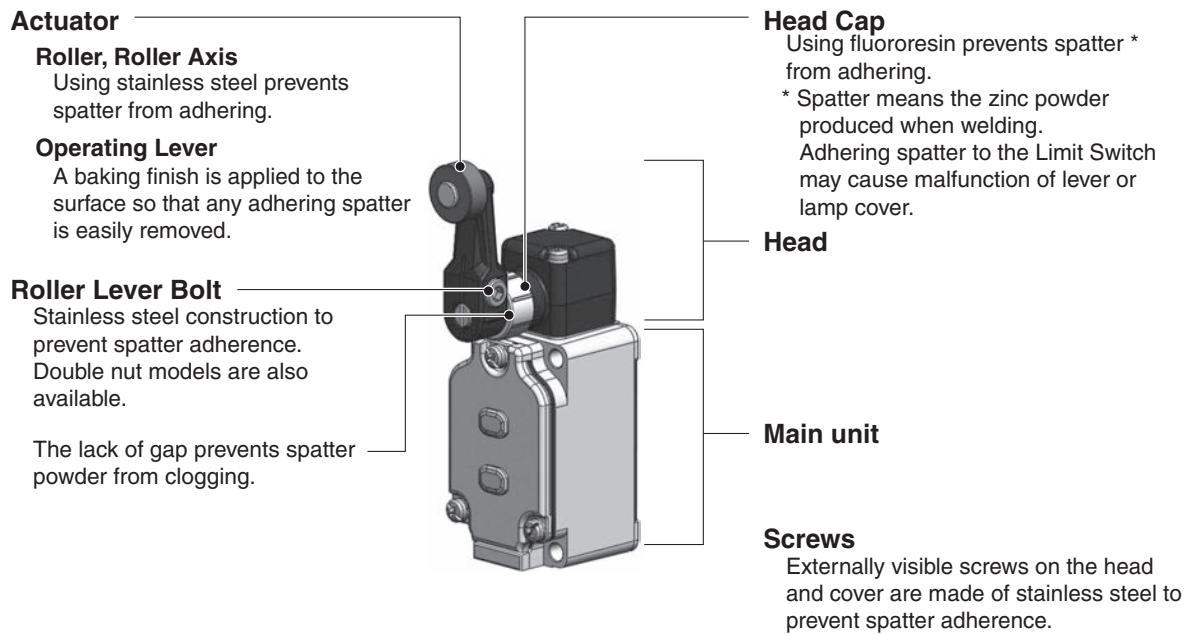
Connector Pin Layout Diagram



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

Structure and Nomenclature

Spatter-prevention Models (WLCA2-LES-N)



Dimensions

Roller Lever

Roller lever R38

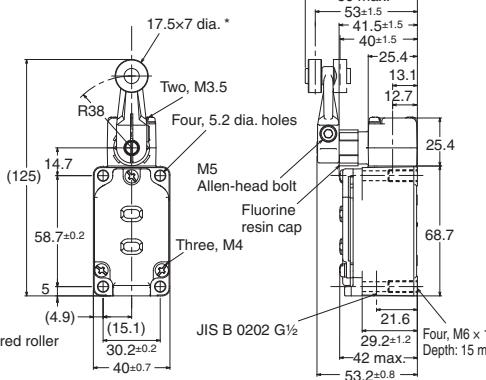
Allen-head lever

With operation indicator (LED)

WLCA2-LDS-N

With operation indicator (neon lamp)

WLCA2-LES-N



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

Roller lever R38

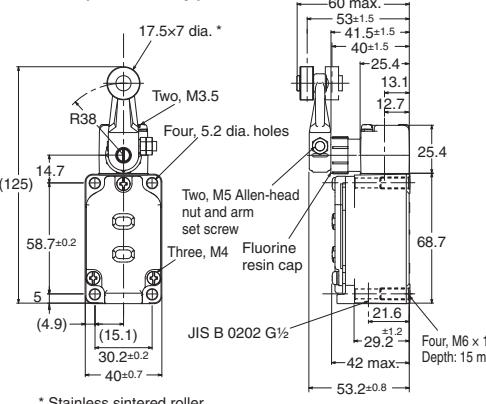
Double nut lever

With operation indicator (LED)

WLCA2-LDAS-N

With operation indicator (neon lamp)

WLCA2-LEAS-N



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

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

Operating characteristics

Model		WLCA2-LDAS-N WLCA2-LEAS-N WLCA2-LDS-N WLCA2-LES-N	WLG2-LDAS WLG2-LDS WLG2-LEAS WLG2-LES	WLGCA2-LDS WLGCA2-LES
Operating force	OF max.	13.34 N	9.81 N	13.34 N
Release force	RF min.	1.18 N	0.98 N	1.47 N
Pretravel	PT	15 \pm 5°	10° $^{+1}_{-2}$	5° $^{+2}_{-1}$
Overtravel	OT min.	70°	65°	40°
Movement Differential	MD max.	12°	7°	3°

Roller lever R38

Allen-head lever

With operation indicator (LED)

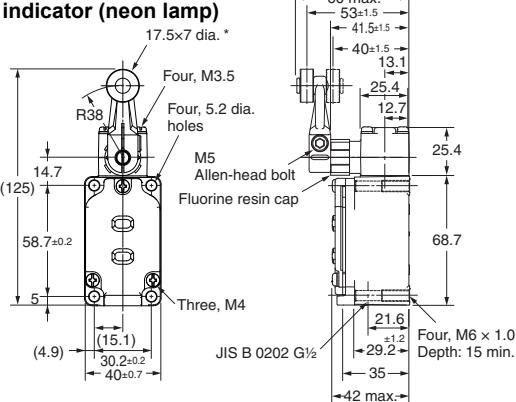
WLG2-LDS

WLGCA2-LDS

With operation indicator (neon lamp)

WLG2-LES

WLGCA2-LES



Note: The photo shows the WLG2-LDS model.

Roller lever R38

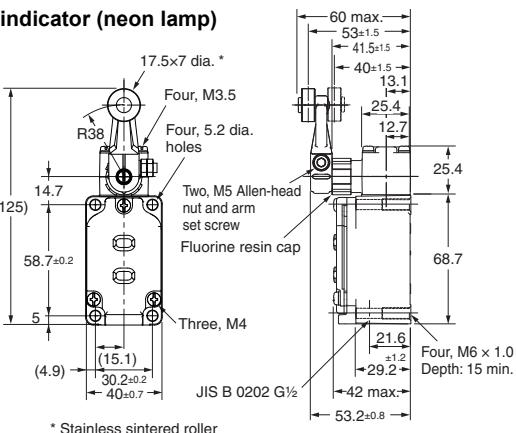
Double nut lever

With operation indicator (LED)

WLG2-LDAS

With operation indicator (neon lamp)

WLG2-LEAS



Note: The photo shows the WLG2-LDAS model.

Pre-wired connector (threaded)

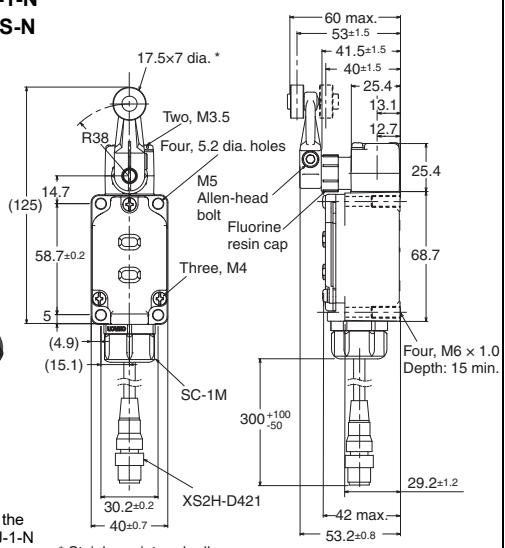
Roller lever R38

Allen-head lever

With operation indicator (LED)

WLCA2-LDS-M1J-1-N

WLCA2-LDS-DGJS-N



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

* Stainless sintered roller

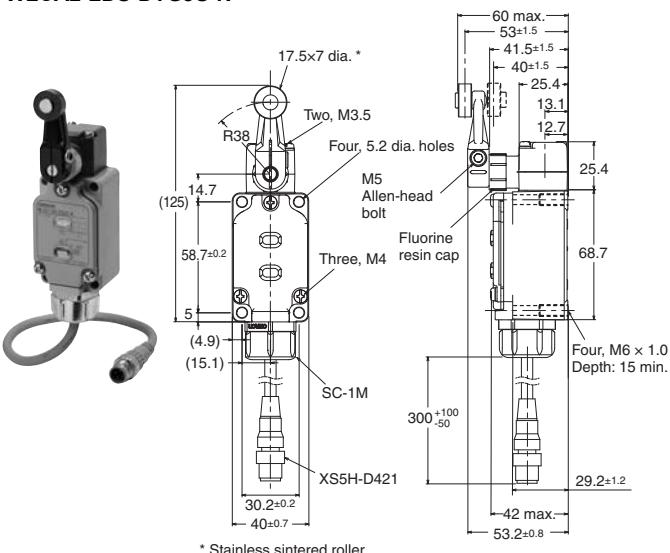
Pre-wired connector type (Smartclick)

Roller lever R38

Allen-head lever

With operation indicator (LED)

WLCA2-LDS-DTGJS-N



* Stainless sintered roller

Roller lever R38

Allen-head lever

Threaded (M12)

With operation indicator (LED)

WLG2-LDS-DGJS03

WLG2-LDS-DK1EJ03

WLG2-55LDS-M1J-1

WLG2-55LDS-M1GJ-1

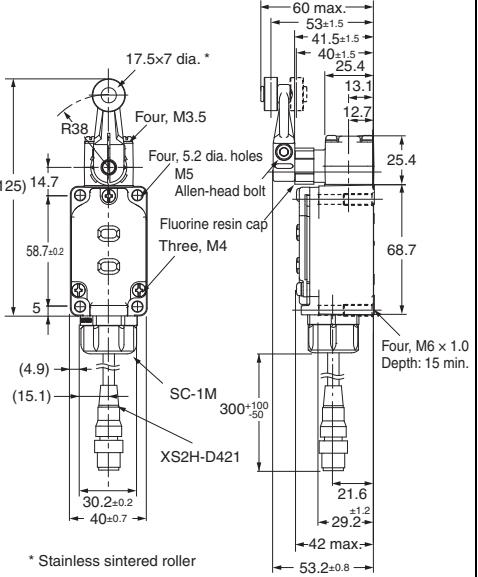
WLG2-55LDS-DGJS03

WLG2-LDS-M1J-1

WLG2-LDS-M1GJ-1

WLGCA2-LDS-M1J-1

WLGCA2-LDS-M1GJ-1



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

Roller lever R38

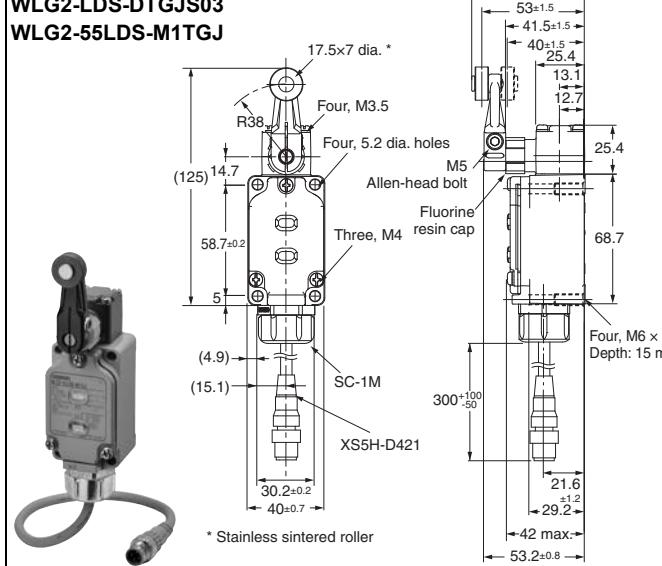
Allen-head lever

Smartclick

With operation indicator (LED)

WLG2-LDS-DTGJS03

WLG2-55LDS-M1TGJ



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

Operating characteristics

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

Sealed top-roller plunger

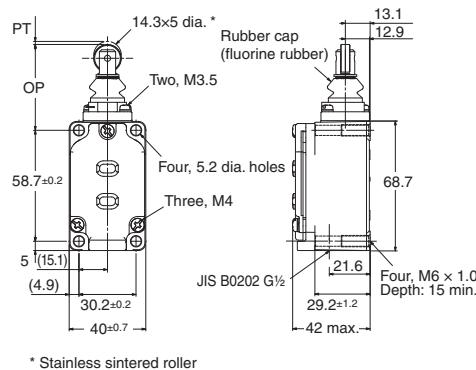
With operation indicator

LED

WLD28-LDS-N

Neon lamp

WLD28-LES-N

**Note:** The photo shows the WLD28-LDS-N model.**Sealed top-roller plunger**

Threaded (M12)

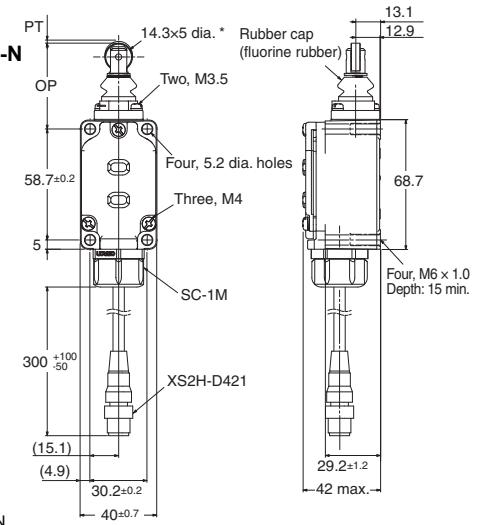
WLD28-LDS-M1J-1-N

WLD28-LDS-M1GJ-1-N

WLD28-LDS-DGJS-N

Smartclick

WLD28-LDS-DTGJS-N

**Note:** The photo shows the WLD28-LDS-M1J-1-N model.**Note:** Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.**Operating characteristics**

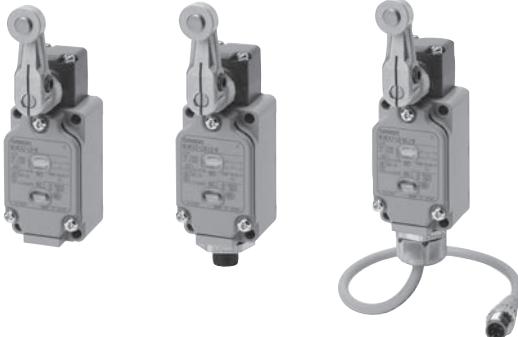
Model	WLD28-LDS-N WLD28-LES-N WLD28-LDS-M1J-1-N WLD28-LDS-M1GJ-1-N WLD28-LDS-DGJS-N WLD28-LDS-DTGJS-N
Operating force OF max.	16.67 N
Release force RF min.	4.41 N
Pretravel PT max.	1.7 mm
Overtravel OT min.	5.6 mm
Movement Differential MD max.	1 mm
Operating Position OP	44.5±0.8 mm
Total travel Position TTP max.	39.5 mm

Long-life Switches

WL-N/WLG

A mechanical durability of over 30 Million Operations

- Long life has been achieved by increasing the resistance to friction and creating better sliding properties in the head mechanism
- Direct-wire Connector and Pre-wired Connector Models in the lineup
- Operation indicators (LED) installed in all the Long-life Switches.



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

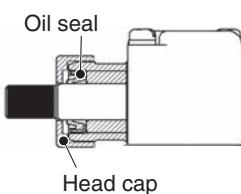
Be sure to read *Safety Precautions* on pages 83 to 88 and *Safety Precautions for All Limit Switches*.

Features

Mechanical structure featuring mechanical durability of more than 30 million operations (WLMCA2-N)

Shield Structure

A head cap and oil seal form a double-seal structure. Excellent durability and reliability are ensured.



Head

You can remove the two screws to mount the head in any of the four possible directions.

Built-in Switch

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

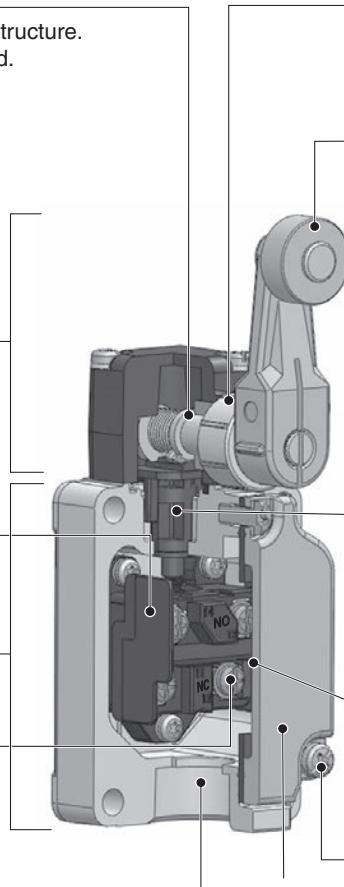
Main unit

Terminal Screws

Four, M3.5 screws.

Conduit Opening

In addition to parallel threads for G1½ tubing, direct-wired and pre-wired connector types are available.



Head Cap

The head cap helps prevent the entry of cutting chips. You can use the protrusion on the cap to confirm the set position.

Actuator

Roller

The roller is made of self-lubricating sintered stainless steel. It provides superior resistance to wear.

Lever

The lever is forged from anti-corrosive aluminum alloy. It provides superior corrosion resistance and outstanding strength. With a roller lever actuator, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Operating Plunger

PEEK resin is used. It provides superior resistance to wear. You can change the mounting direction to use any one of the three operating directions (both sides, left side, or right side).

Cover Seal

High sealing performance is achieved. The seal also serves as a spacer. There is no troublesome insulating paper, making it easy to work with the Switch.

Cover Setscrew

A combination Philips-slotted screw is used. A retainer prevents the screw from falling from the cover even when the screw is loose.

Model Number Structure

Model Number Legend

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

Basic models

WLM□ - LD□ -N
(1) (2) (3)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
CA2	Roller lever	Roller lever: R38 mm	15±5°

(2) Indicator Specifications

Code	Specifications	
LD	LED (10 to 115 VAC/DC)	

(3) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G $\frac{1}{2}$)	---	---	---	---
K13A	Direct-wire connector	Threaded (M12)	AC	NO only	NO: (3) (4)
K13			DC	NO only	NO: (3) (4)
K43A			AC	NC+NO	NO: (3) (4) NC: (1) (2)
K43			DC	NC+NO	NO: (3) (4) NC: (1) (2)
-M1J	Pre-wired connectors *	Threaded (M12)	DC	NO only	NO: (3) (4)
-AGJ			AC	NC+NO	NO: (3) (4) NC: (1) (2)
-DGJ			DC	NC+NO	NO: (3) (4) NC: (1) (2)
-DTGJ		Smartclick	DC	NC+NO	NO: (3) (4) NC: (1) (2)

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

High-sensitivity and High-precision Switches

WLMG□ - LD□
(1) (2) (3)

(1) Actuator and Property Specifications

Code	Actuator		Pretravel (PT)
2	Roller lever	Roller lever: R38 mm High-sensitivity Models	10° ^{+2°} _{-1°}
CA2	Roller lever	Roller lever: R38 mm High-precision Models	5° ^{+2°} _{0°}

(2) Indicator Specifications

Code	Specifications	
LD	LED (10 to 115 VAC/DC)	

(3) Wiring Specifications

Code	Terminal shape	Connector shape	Voltage	Wiring locations	Connector pin No.
None	Screw terminals (Conduit size: G $\frac{1}{2}$)	---	---	---	---
K13A	Direct-wire connector	Threaded (M12)	AC	NO only	NO: (3) (4)
K13			DC	NO only	NO: (3) (4)
K43A			AC	NC+NO	NO: (3) (4) NC: (1) (2)
K43			DC	NC+NO	NO: (3) (4) NC: (1) (2)
-M1J	Pre-wired connectors *	Threaded (M12)	DC	NO only	NO: (3) (4)
-DGJ03			DC	NC+NO	NO: (3) (4) NC: (1) (2)
-DTGJ03		Smartclick	DC	NC+NO	NO: (3) (4) NC: (1) (2)

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

Ordering Information

Roller Lever

Screw terminals

Appearance	Actuator	Pretravel (PT)	With operation indicator *		
			LED		
			Model		
	Roller lever: R38 mm	15±5°	WLMCA2-LD-N		
		10° ^{+2°} _{-1°}	WLMG2-LD		
		5° ^{+2°} _{0°}	WLMGCA2-LD		

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

Direct-wire connector

Appearance	Actuator	Pretravel (PT)	Voltage	Wiring locations	Connector pin No.	With operation indicator *		
						LED		
						Model		
	Roller lever: R38 mm	15±5°	AC	NO only	NO: ③ ④	WLMCA2-LDK13A-N		
				NC+NO	NO: ③ ④ NC: ① ②	WLMCA2-LDK43A-N		
			DC	NO only	NO: ③ ④	WLMCA2-LDK13-N		
				NC+NO	NO: ③ ④ NC: ① ②	WLMCA2-LDK43-N		
		10° ^{+2°} _{-1°}	AC	NO only	NO: ③ ④	WLMG2-LDK13A		
				NC+NO	NO: ③ ④ NC: ① ②	WLMG2-LDK43A		
			DC	NO only	NO: ③ ④	WLMG2-LDK13		
				NC+NO	NO: ③ ④ NC: ① ②	WLMG2-LDK43		
		5° ^{+2°} _{0°}	AC	NO only	NO: ③ ④	WLMGCA2-LDK13A		
				NO only	NO: ③ ④	WLMGCA2-LDK13		
			DC	NC+NO	NO: ③ ④ NC: ① ②	WLMGCA2-LDK43		

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

Pre-wired connectors

Appearance	Actuator	Pretravel (PT)	Voltage	Connector shape	Wiring locations	Connector pin No.	With operation indicator *		
							LED		
							Model		
	Roller lever: R38 mm	15±5°	AC	Threaded (M12)	NO only	NO: ③ ④	WLMCA2-LD-M1J-N		
					NC+NO	NO: ③ ④ NC: ① ②	WLMCA2-LD-AGJ-N		
			DC	Smartclick	NO only	NO: ③ ④ NC: ① ②	WLMCA2-LD-DGJ-N		
					NC+NO	NO: ③ ④ NC: ① ②	WLMCA2-LD-DTGJ-N		
		10° ^{+2°} _{-1°}	AC	Threaded (M12)	NO only	NO: ③ ④	WLMG2-LD-M1J		
					NC+NO	NO: ③ ④ NC: ① ②	WLMG2-LD-DGJ03		
			DC	Smartclick	NO only	NO: ③ ④ NC: ① ②	WLMG2-LD-DTGJ03		
					Threaded (M12)	NO only	WLMGCA2-LD-M1J		

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

* The default setting is for light-ON when not operating. Turn the lamp holder by 180° to change the setting to light-ON when operating. (However, Four-core Switches cannot be switched to light-ON when operating (NC wiring).)

Specifications

Ratings

Screw terminals

With Operation Indicator

Basic models (WL-N)

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

Note: 1. The above figures are for steady-state currents.

2. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
3. A lamp load has an inrush current of 10 times the steady-state current.
4. A motor load has an inrush current of 6 times the steady-state current.

Allowable Inrush Current/Minimum Applicable Load

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

Operation Indicator

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

Direct-wire connector and Pre-wired Connector Models Type

DC Connector: With Operation Indicators (LEDs)

Basic models (WL-N)

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

AC Connector: With Operation Indicators (LEDs)

Basic models (WL-N)

Ratings	Non-inductive load (A)				Inductive load (A)			
	Basic models (WL-N)		Basic models (WL-N)		Inductive load		Motor load	
	Resistive load	Lamp load	Inductive load	Motor load	NC	NO	NC	NO
Voltage (V)	NC	NO	NC	NO	NC	NO	NC	NO
AC	115	3	3	1.5	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.

Minimum Applicable Load

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

Operation Indicator

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

High-sensitivity and High-precision models (WLG)

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

High-sensitivity and High-precision models (WLG)

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

High-sensitivity and High-precision models (WLG)

Ratings	Non-inductive load (A)	
	High-sensitivity and High-precision models (WLG)	
	Resistive load	
Voltage (V)	NC	NO
AC	115	3

Characteristics

Operating characteristics type		Basic models (WL-N)	High-sensitivity and High-precision models (WLG)
Permissible operating frequency	Mechanical	120 operations/minute	
	Electrical	30 operations/minute	
Rated frequency		50/60 Hz	
Permissible operating speed		1 mm/sec to 1 m/sec	
Insulation resistance		100 MΩ min. (at 500 VDC)	
Contact resistance		25 mΩ max. (initial value for the built-in switch)	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude	
Shock	Destruction	1,000 m/s ² max.	
	Malfunction	300 m/s ² max.	
Durability *1	Mechanical	30,000,000 operations min.	
	Electrical	30,000,000 operations min. (10 mA at 24 VAC, resistive load) 750,000 operations min. (3 A at 115 VAC, resistive load)	500,000 operations min. (3 A at 115 VAC, resistive load)
Ambient operating temperature		-10 to +80°C (with no icing)	
Ambient operating humidity		35 to 95%RH	
Degree of protection *2		IP67 (EN60947-5-1)	
Weight		Approx. 255 g (in case of WLMCA2-LD-N)	Approx. 270 g (in case of WLMGCA2-LD)

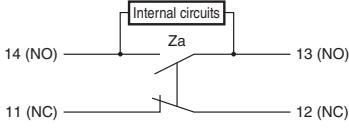
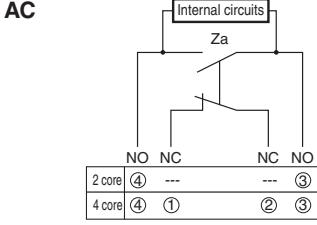
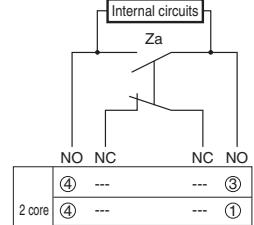
Note: The above figures are initial values.

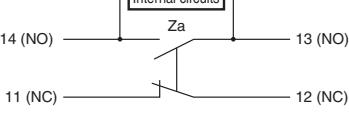
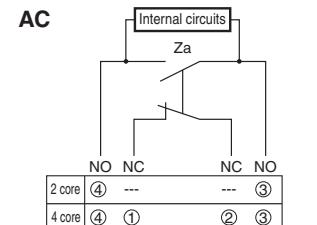
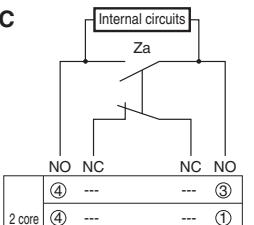
- *1. The values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 40% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.
- *2. The degree of protection is tested using the method specified by the standard (EN60947-5-1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.

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

* Excluding those with operation indicators.

Terminal Connection Diagram

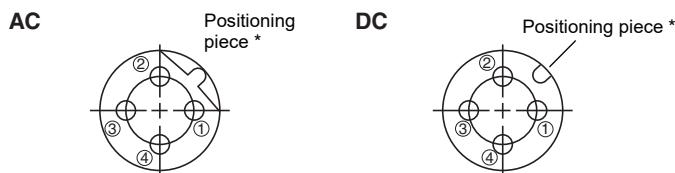
Operating characteristics type	Basic models (WL-N)	
Wiring Specifications	Screw terminals	Direct-wire connector and Pre-wired Connector Models
Operation indicator (Light-ON when Not Operating *)		<p>AC</p>  <p>①②③④ indicate the connector pin number.</p> <p>DC</p>  <p>①②③④ indicate the connector pin number.</p>

Operating characteristics type	High-sensitivity and High-precision models (WLG)	
Wiring Specifications	Screw terminals	Direct-wire connector and Pre-wired Connector Models
Operation indicator (Light-ON when Not Operating *)		<p>AC</p>  <p>①②③④ indicate the connector pin number.</p> <p>DC</p>  <p>①②③④ indicate the connector pin number.</p>

Note: Leakage current from indicator circuit may cause load malfunction (i.e., the load may remain ON). Make sure that the load operating current is higher than the leakage current. For countermeasures, refer to technical support on your OMRON website.

* Light-ON when not operating means the operation indicator is lit when the actuator is free and is not light when the Switch contacts (NO) close when the actuator rotates or is pushed down. The above shows details of the switch interior. External wires (external resistances) are not shown. For details, refer to **Operation** on pages 19.

Connector Pin Layout Diagram



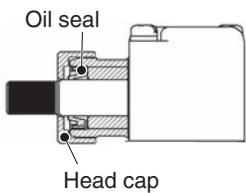
* The position of the positioning piece is not always the same. If using an L-shaped connector causes problems in mounting, use a straight connector.

Structure and Nomenclature

WLMCA2-N

Shield Structure

A head cap and oil seal form a double-seal structure. Excellent durability and reliability are ensured.



Head

You can remove the two screws to mount the head in any of the four possible directions.

Built-in Switch

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

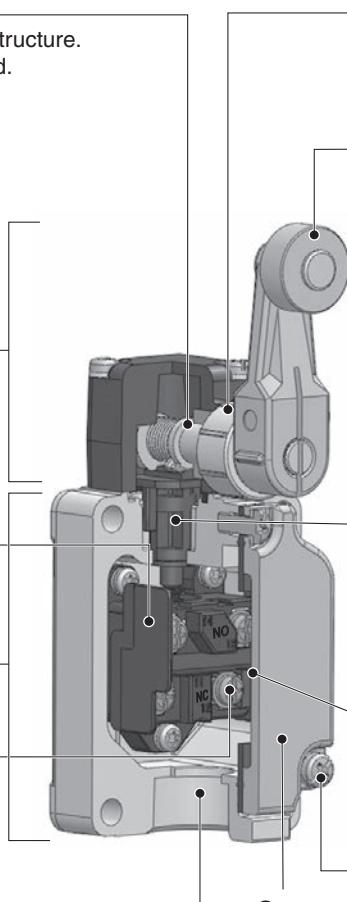
Main unit

Terminal Screws

Four, M3.5 screws.

Conduit Opening

In addition to parallel threads for G1½ tubing, direct-wired and pre-wired connector types are available.



Head Cap

The head cap helps prevent the entry of cutting chips. You can use the protrusion on the cap to confirm the set position.

Actuator Roller

The roller is made of self-lubricating sintered stainless steel. It provides superior resistance to wear.

Lever

The lever is forged from anti-corrosive aluminum alloy. It provides superior corrosion resistance and outstanding strength. With a roller lever actuator, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Operating Plunger

PEEK resin is used. It provides superior resistance to wear. You can change the mounting direction to use any one of the three operating directions (both sides, left side, or right side).

Cover Seal

High sealing performance is achieved. The seal also serves as a spacer. There is no troublesome insulating paper, making it easy to work with the Switch.

Cover Setscrew

A combination Philips-slotted screw is used. A retainer prevents the screw from falling from the cover even when the screw is loose.

WLMG2

Actuator**Roller**

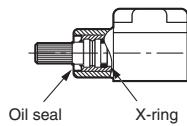
The roller is made of self-lubricating stainless sintered and boasts high resistance to wear.

Lever

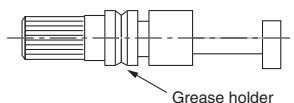
The lever forged of anti-corrosive aluminium alloy features high corrosion resistance and outstanding ruggedness. With roller lever models, the actuator position can be set anywhere within 360°. (The lever cannot be mounted in the opposite direction.)

Shaft Section Seal

By fitting a double seal consisting of an oil seal and an X-ring to the rotary shaft, even greater sealing properties are achieved.

**Smooth Movement**

A grease holder is provided on the shaft to prevent the grease from running out.



Smooth movement is achieved using olefin grease. (Standard models use molybdenum disulfide grease.)

Cover**Cover Mounting Screw**

A combination Phillips-slotted screws are used to ensure ease of use.

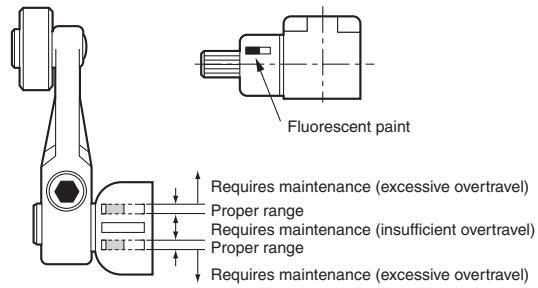
Cover Seal

High sealing performance is achieved. The seal also serves as a spacer.

There is no troublesome insulating paper, making it easy to work with the Switch.

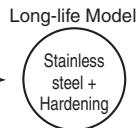
Set Position Marker Plate**The set position is easy to view.**

The stroke is indicated in fluorescent color that is visible from the slit in the rubber cap.

**Release Plunger**

Hardening method changed for greater abrasion resistance.

Standard Model

**Head Mounting Screws****Operational Plunger****Head**

The Head can be mounted in any of the four directions by removing the screws at the four corners of the Head.

Bearing

The bearing smooths the plunger movement.

Terminal Screws

Four, M3.5 screws

Built-in Switch

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

Conduit Opening

In addition to parallel threads for G1/2 tubing, direct-wired and pre-wired connector types are available.

Dimensions

(Unit: mm)

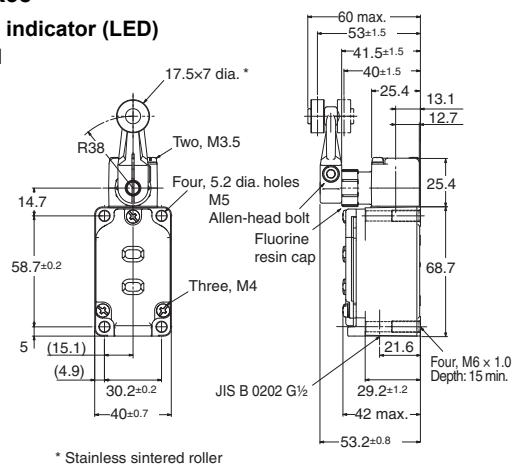
Roller Lever

Screw terminals

Roller lever R38

With operation indicator (LED)

WLMCA2-LD-N

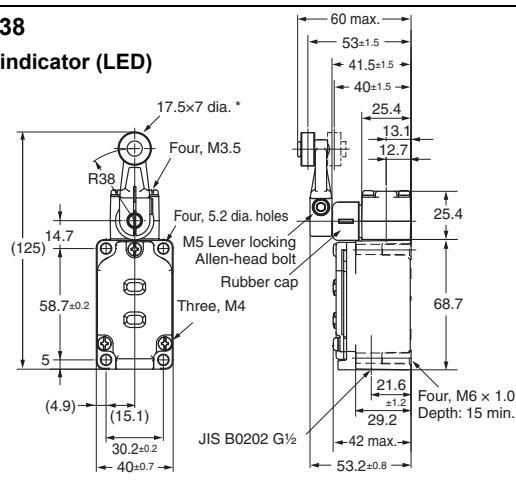


* Stainless sintered roller

Roller lever R38

With operation indicator (LED)

WLMG2-LD

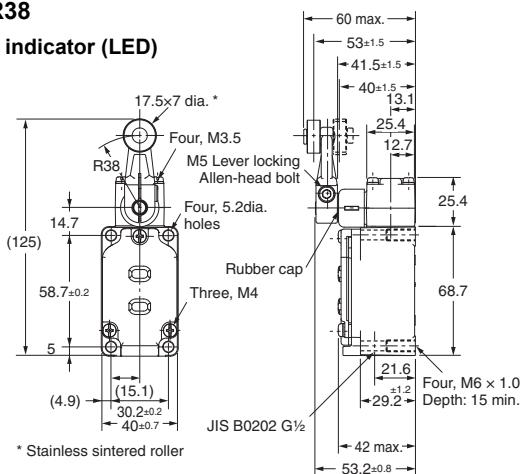


* Stainless sintered roller

Roller lever R38

With operation indicator (LED)

WLMGCA2-LD



* Stainless sintered roller

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

Operating characteristics

Model	WLMCA2-LD-N	WLMG2-LD	WLMGCA2-LD
Operating force OF max.	13.34 N	9.81 N	13.34 N
Release force RF min.	1.18 N	0.98 N	1.47 N
Pretravel PT	15±5°	10° ^{+2°} / _{-1°}	5° ^{+2°} / _{-1°}
Overtravel OT min.	70°	65°	40°
Movement Differential MD max.	12°	7°	3°

Direct-wire connector

Roller lever R38

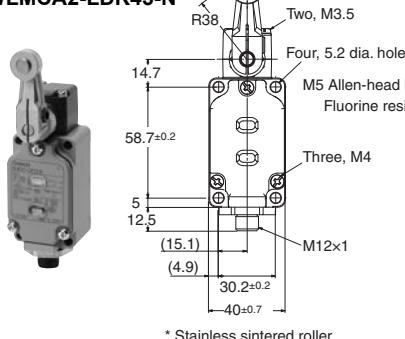
With operation indicator (LED)

WLMCA2-LDK13A-N

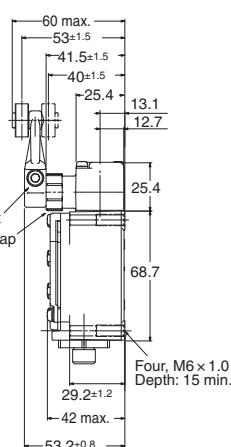
WLMCA2-LDK43A-N

WLMCA2-LDK13-N

WLMCA2-LDK43-N



* Stainless sintered roller



Roller lever R38

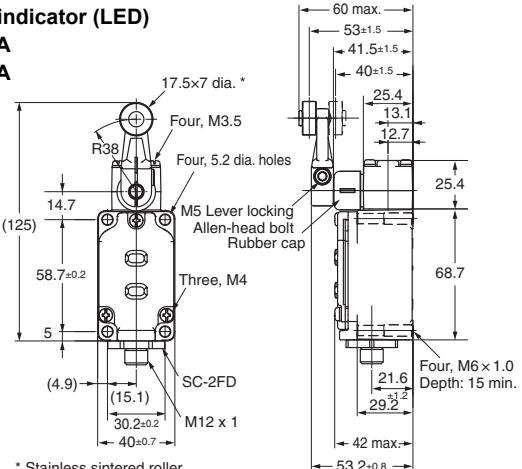
With operation indicator (LED)

WLMG2-LDK13A

WLMG2-LDK43A

WLMG2-LDK13

WLMG2-LDK43



Note: The photo shows the WLMCA2-LDK13-N model.

Note: The photo shows the WLMG2-LDK13 model.

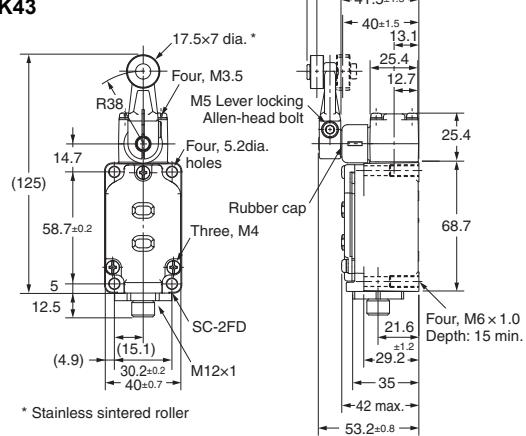
Roller lever R38

With operation indicator (LED)

WLMGCA2-LDK13A

WLMGCA2-LDK13

WLMGCA2-LDK43



Note: The photo shows the WLMGCA2-LDK13 model.

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

Operating characteristics

Model	WLMCA2-LDK13A-N WLMCA2-LDK43A-N WLMCA2-LDK13-N WLMCA2-LDK43-N	WLMG2-LDK13A WLMG2-LDK43A WLMG2-LDK13 WLMG2-LDK43	WLMGCA2-LDK13A WLMGCA2-LDK13 WLMGCA2-LDK43
Operating force OF max.	13.34 N	9.81 N	13.34 N
Release force RF min.	1.18 N	0.98 N	1.47 N
Pretravel PT	15 \pm 5°	10° $^{+2\circ}_{-1\circ}$	5° $^{+2\circ}_{-1\circ}$
Overtravel OT min.	70°	65°	40°
Movement Differential MD max.	12°	7°	3°

Pre-wired connectors

Roller lever R38

With operation indicator (LED)

Threaded (M12)

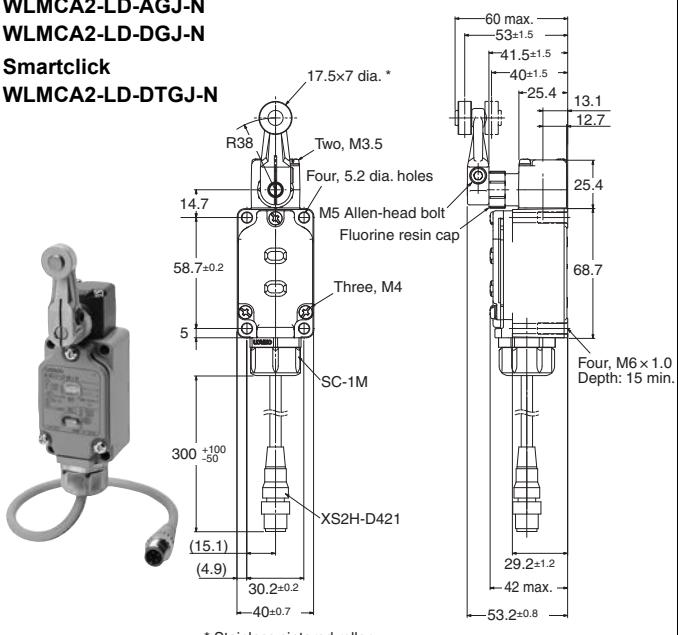
WLMCA2-LD-M1J-N

WLMCA2-LD-AGJ-N

WLMCA2-LD-DGJ-N

Smartclick

WLMCA2-LD-DTGJ-N



Note: The photo shows the WLMCA2-LD-M1J-N model.

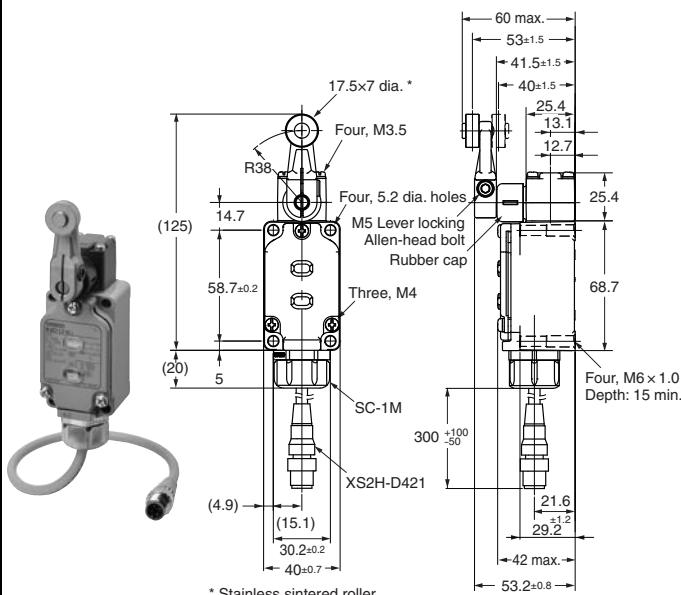
Roller lever R38

With operation indicator (LED)

Threaded (M12)

WLMG2-LD-M1J

WLMG2-LD-DTGJ03



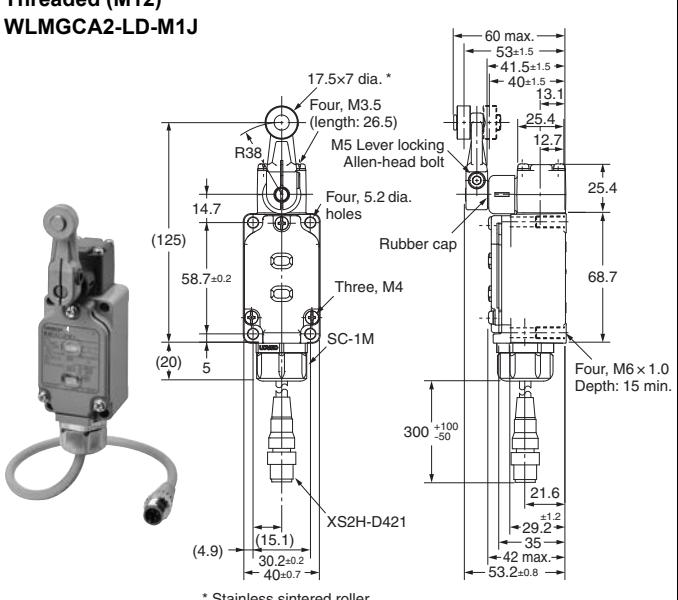
Note: The photo shows the WLMG2-LD-M1J model.

Roller lever R38

With operation indicator (LED)

Threaded (M12)

WLMGCA2-LD-M1J



Note: The photo shows the WLMGCA2-LD-M1J model.

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

Operating characteristics

Model		WLMCA2-LD-M1J-N WLMCA2-LD-AGJ-N WLMCA2-LD-DGJ-N WLMCA2-LD-DTGJ-N	WLMG2-LD-M1J WLMG2-LD-DGJ03 WLMG2-LD-DTGJ03	WLMGCA2-LD-M1J
Operating force Release force	OF max. RF min.	13.34 N 1.18 N	9.81 N 0.98 N	13.34 N 1.47 N
Pretravel Overtravel	PT OT min.	15 \pm 5° 70°	10° $^{+2}_{-1}$ 65°	5° $^{+2}_{-1}$ 40°
Movement Differential	MD max.	12°	7°	3°

Common Accessories (Sold Separately)

Ordering Information

Single-item ordering models

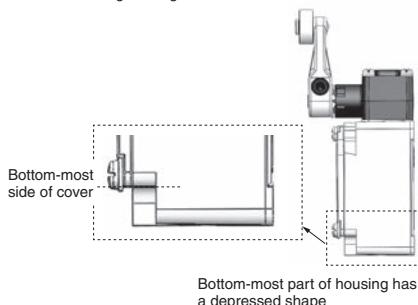
Switches without levers, heads, and actuators can be ordered separately. Use by combining with models that are not available as a set. You can also use them as maintenance parts for inventory management.

General-purpose Models

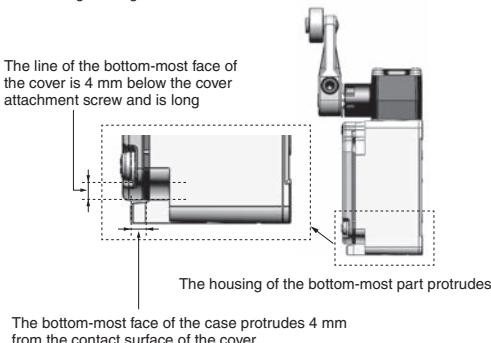
Actuator	Pretravel (PT)	Set Model Numbers	Switches without levers		Actuator *
			Model	Model	
Roller lever: R38 mm	15±5°	WLCA2-N	WLRCA2-N	WL-1H1100-N	WL-1A100
	25±5°	WLCA2-2-N	WLRCA2-2-N	WL-3H1100-N	
	20° max.	WLCA2-2N-N	WLRCA2-2N-N	WL-1H1100-N	
	10° ^{+2°} _{-1°}	WLG2	WLRG2	WL-2H1100-K *	
Adjustable roller lever (R25 to 89 mm)	15±5°	WLCA12-N	WLRCA2-N	WL-1H2100-N	WL-2A100
	25±5°	WLCA12-2-N	WLRCA2-2-N	WL-3H2100-N	
	20° max.	WLCA12-2N-N	WLRCA2-2N-N	WL-1H2100-N	
	10° ^{+2°} _{-1°}	WLG12	WLRG2	WL-2H2100-K *	
Adjustable rod lever: (25 to 140mm)	15±5°	WLCL-N	WLRCL-N	WL-4H4100-N	WL-4A100
	25±5°	WLCL-2-N	WLRCA2-2-N	WL-3H4100-N	
	20° max.	WLCL-2N-N	WLRCA2-2N-N	WL-1H4100-N	
	10° ^{+2°} _{-1°}	WLGL	WLRG2	WL-2H4100-K *	
Sealed top plunger	1.7 mm max.	WLD18-N	---	WL-7H100-N	---
Sealed top-roller plunger	1.7 mm max.	WLD28-N	---	WL-7H400-N	---
Sealed top-ball plunger	1.7 mm max.	WLD38-N	---	WL-7H300-N	---
Horizontal plunger	2.8 mm max.	W LSD-N	---	WL-8H100-N	---
Horizontal-roller plunger	2.8 mm max.	W LSD2-N	---	WL-8H200-N	---
Horizontal-ball plunger	2.8 mm max.	W LSD3-N	---	WL-8H300-N	---
Coil spring (6.5 dia.)	20±10 mm	WLNJ-N	---	WL-9H100-N	---
Coil spring (4.8 dia.)	20±10 mm	WLNJ-30-N	---	WL-9H200-N	---
Flexible rod: Resin rod (8 dia.)	40±20 mm	WLNJ-2-N	---	WL-9H300-N	---
Flexible rod: Steel wire (1 dia.)	40±20 mm	WLNJ-S2-N	---	WL-9H400-N	---
Fork Lock Lever A	55° max.	WLCA32-41-N	WLRCA32-N	WL-5H5100-N	WL-5A100
Fork Lock Lever B	55° max.	WLCA32-42-N		WL-5H5102-N	WL-5A102
Fork Lock Lever C	55° max.	WLCA32-43-N		WL-5H5104-N	WL-5A104
Fork Lock Lever D	55° max.	WLCA32-44-N		WL-5H5104-N	WL-5A104

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

Before design change



After design change

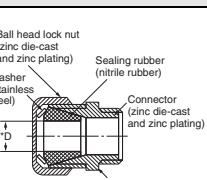
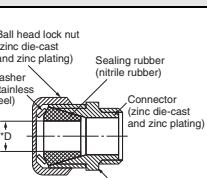
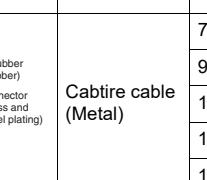
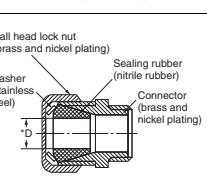
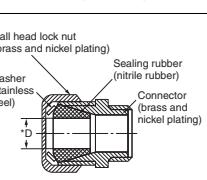
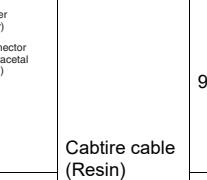
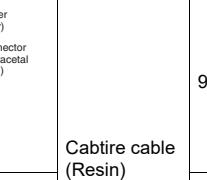
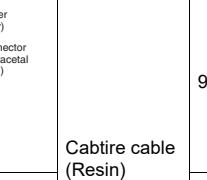
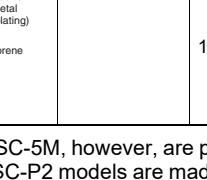
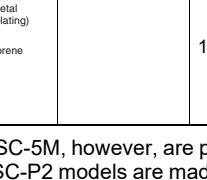


Spatter-prevention Models

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

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

Connector for cabtire cable (Conduit size: JIS B0202G^{1/2})

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

WL□-N
WLG□
Wiring
Specifications:
Screw
terminals

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

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

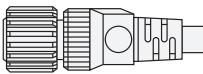
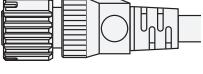
* mark dimensional table

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

FA Connectors

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

Sensor I/O connectors

Appearance	AC/DC type	Number of cable cores	Cable length (m)	Cable model	Compatible model
 M12 Screw (Straight)	for AC	2	2	XS2F-A421-DB0-F	WL□-□K13A-N WLG□-□K13A
			5	XS2F-A421-GB0-F	
		4	2	XS2F-A421-D90-F	WL□-□K43A-N WL□-□-AGJ-N WLG□-□K43A WLG□-□-AGJ03
			5	XS2F-A421-G90-F	
	for DC	2	2	XS2F-D421-DD0	WL□-□K13-N WL□-□-M1J-N WLG□-□K13 WLG□-□-M1J
			5	XS2F-D421-GD0	
		4	2	XS2F-D421-DA0-F	WL□-□-M1GJ□-N WLG□-□-M1GJ□
			5	XS2F-D421-GA0-F	
		2	2	XS2F-D421-D80-F	WL□-□K43-N WL□-□-M1JB-N WL□-□-DGJ-N WL□-□-DK1EJ-N WLG□-□K43 WLG□-□-M1JB WLG□-□-DGJ03 WLG□-□-DK1EJ03
			5	XS2F-D421-G80-F	
 M12 Smartclick (Straight)	for DC	4	2	XS5F-D421-D80-F	WL□-□-M1TJ-N WL□-□-M1TGJ-N WL□-□-M1TJB-N WL□-□-DTGJ-N WL□-□-DTK1EJ-N WLG□-□-M1TJ WLG□-□-M1TGJ WLG□-□-M1TJB WLG□-□-DTGJ03 WLG□-□-DTK1EJ03
			5	XS5F-D421-G80-F	

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

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

*1. The default setting is for light-ON when not operating. Turn the lamp holder by 180° to change the setting to light-ON when operating.

*2. The WL-LD-K, WL-LE-K, WL-LDS-K, and WL-LES-K correspond with each set model WLG□, the design of which was changed in April 2019. Refer to the notes on page 75 for details.

Dimensions

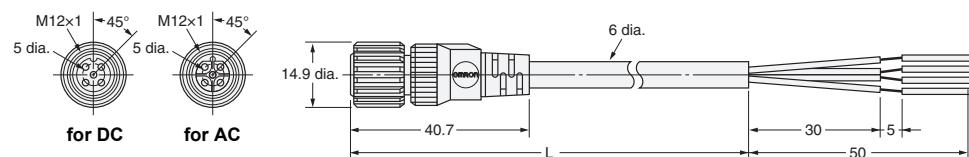
(Unit: mm)

Sensor I/O connectors

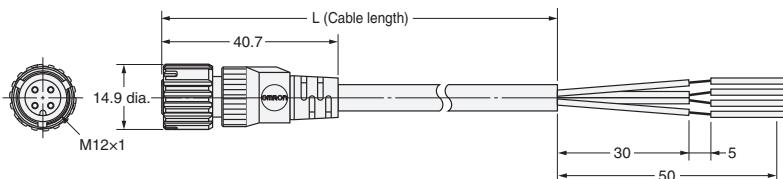
XS2F-A421-□□0-F

XS2F-D421-□D0

XS2F-D421-□□0-F

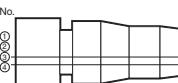


XS5F-D421-□80-F

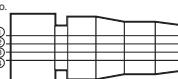


Wiring Diagram

XS2F

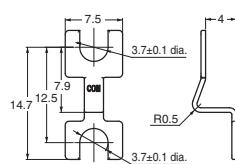
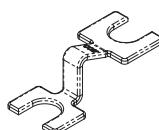
AC/DC Type	Two-core model		Four-core model	
	Model	Wiring Diagram	Model	Wiring Diagram
AC	XS2F-A421-DB0-F XS2F-A421-GB0-F	Terminal No. 	XS2F-A421-D90-F XS2F-A421-G90-F	
DC	XS2F-D421-DD0 XS2F-D421-GD0	Terminal No. 	XS2F-D421-D80-F XS2F-D421-G80-F	Terminal No. 
	XS2F-D421-DA0-F XS2F-D421-GA0-F	Terminal No. 		

XS5F

AC/DC Type	Four-core model	
	Model	Wiring Diagram
DC	XS5F-D421-D80-F XS5F-D421-G80-F	Terminal No. 

Terminal Plate

WL-N TERMINAL PLATE

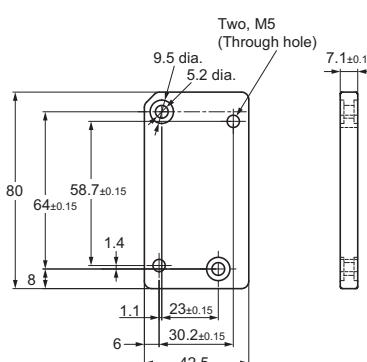


When attaching the Terminal Plate to the built-in switch terminal, the SPST-NO+NC contact can be converted to an SPDT contact.
For details on use, refer to *Terminal Plate* on page 85.

Side mounting plate

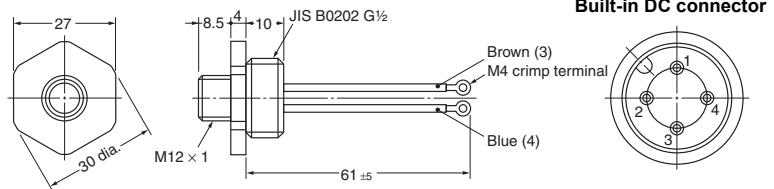
WLN-P001

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

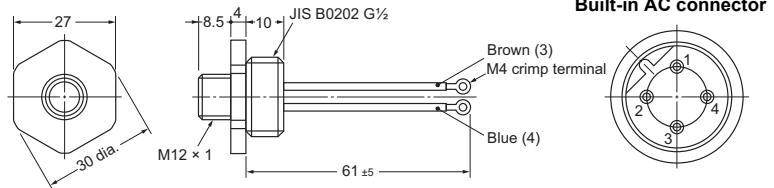


The Side mounting plate allows the actuator to be installed in the same position as the side mounting of the WL□-2N series.
For details on use, refer to *To customers using the WL□-2N series model in a side-mounted configuration* on page 85.

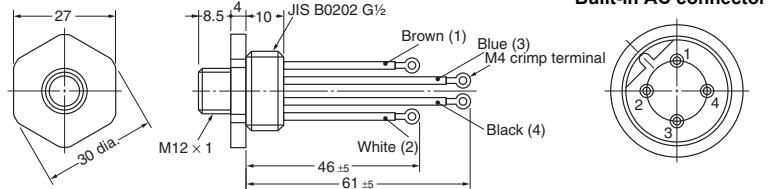
SC-2F



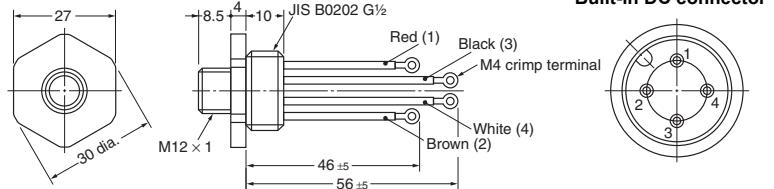
SC-2FAD



SC-4F4AD



SC-4F4D

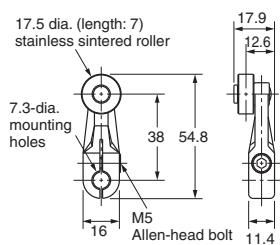


Note: 1. Each dimension has a tolerance of ± 0.4 mm unless otherwise specified.

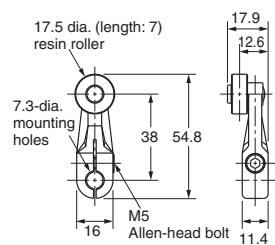
2. Figures in parentheses are connector pin numbers.

Actuators

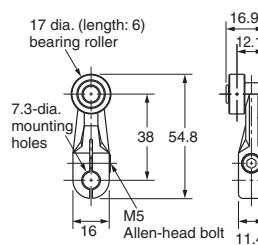
WL-1A100
Standard Lever



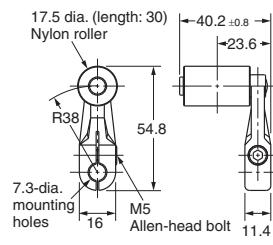
WL-1A115
Resin Roller



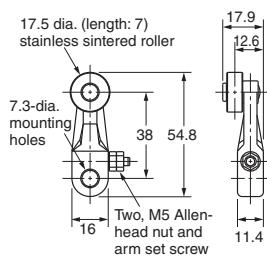
WL-1A400
Bearing Roller



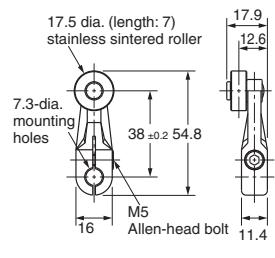
WL-1A118
Nylon Roller:
Roller Width: 30 mm



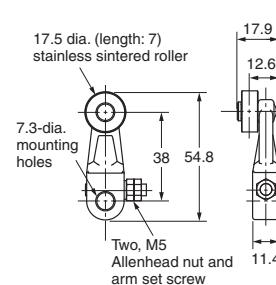
WL-1A105
Double Nuts



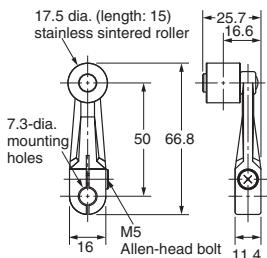
WL-1A103S
Spatter Prevention



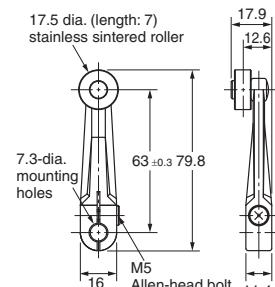
WL-105S
Spatter Prevention



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

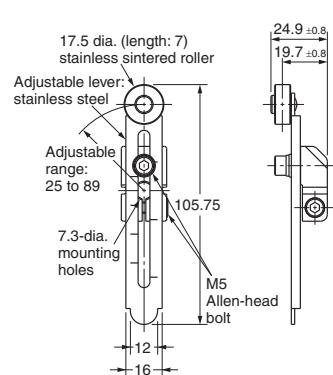
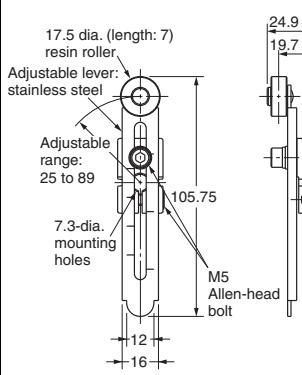
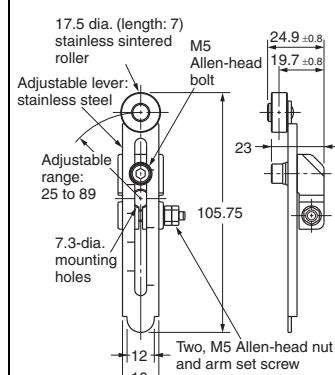
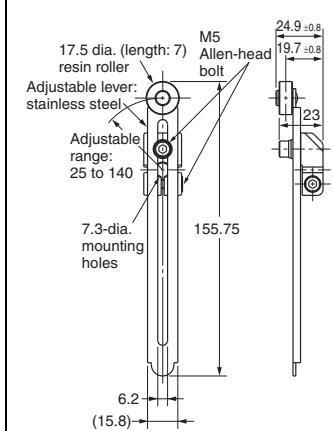


WL-1A300
Lever Length: 63

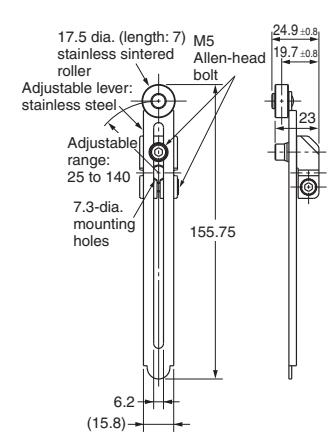


Note: Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

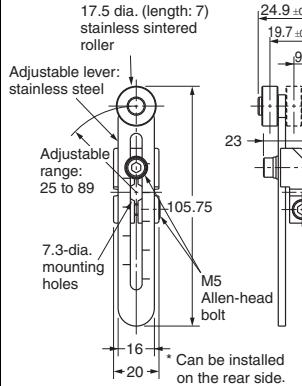
WL-2A100

WL-2A111
Resin RollerWL-2A107
Double NutsWL-2A108
Resin Roller

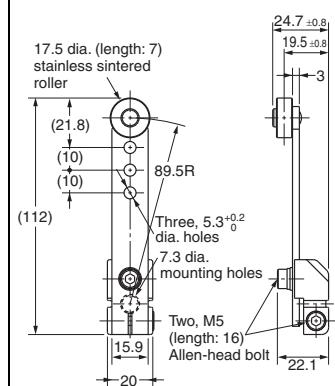
WL-2A122



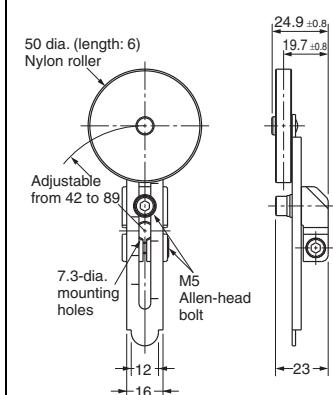
WL-2A106



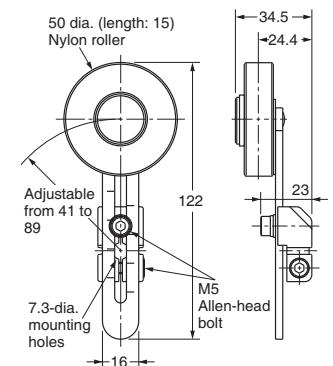
WL-2A130



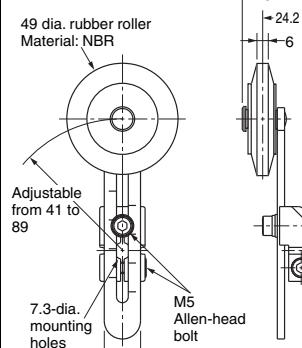
WL-2A104



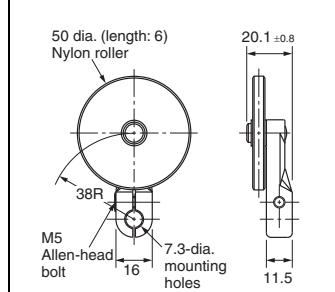
WL-2A110



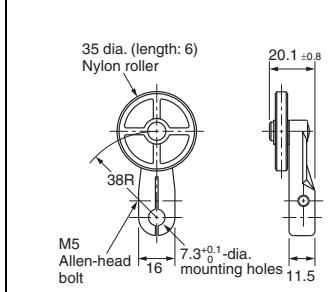
WL-2A105



WL-1A106

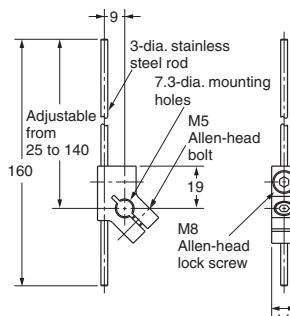


WL-1A110

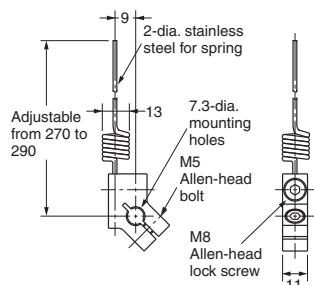


Note: Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

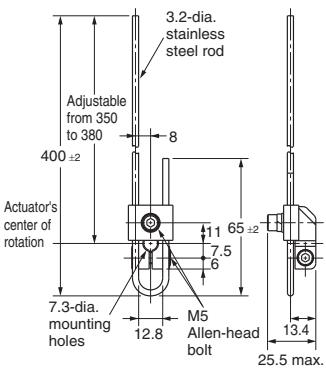
WL-4A100



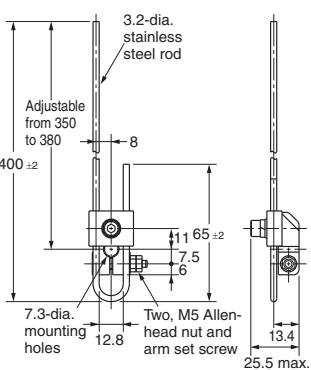
WL-4A201



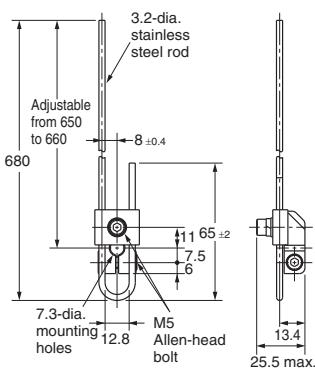
WL-3A100



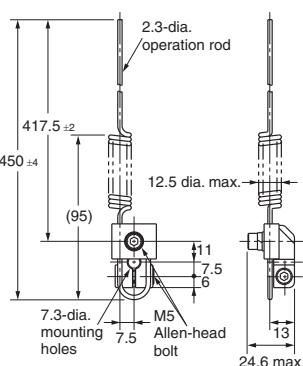
**WL-3A106
Double Nut**



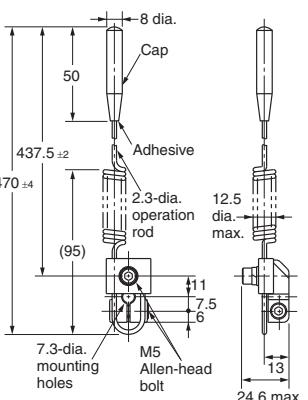
WL-3A108



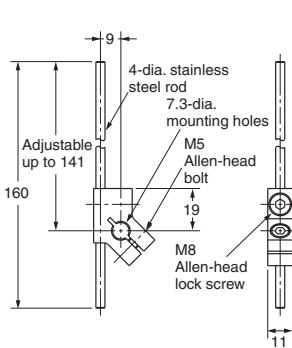
WL-3A200



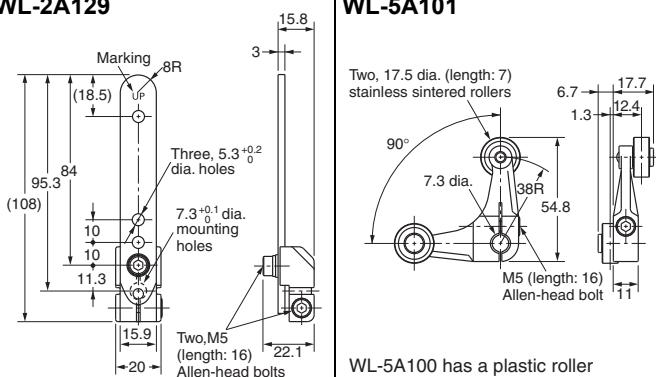
WL-3A203



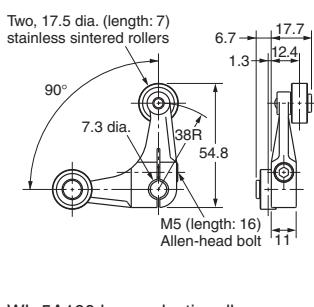
WL-4A112



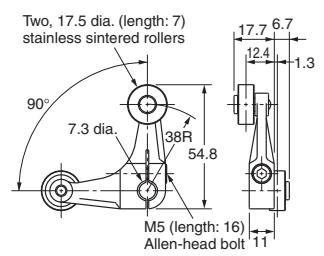
WL-2A129



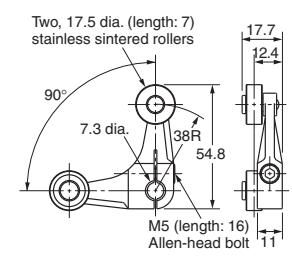
WL-5A101



WL-5A103



WL-5A105



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.

Safety Precautions

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

Meanings of Warning Signal Text

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

Precautions for Safe Use

- Be sure to ground. Otherwise electric shock may result.
- Do not touch charged switch terminals while the switch has carry current, Otherwise electric shock may result.
- Do not disassemble the limit switch or touch inside of it under supplying power, Otherwise electric shock may result.
- Do not disassemble or touch the inside while the power is turned on. Otherwise electric shock may result.
- Do not touch the wire or rod type actuator in order to prevent injury. Doing so may result in injury.
- Connect a fuse which has 1.5 to 2 times higher breaking current than the switch rated current to the switch in series in order to prevent the switch from short-circuit damage.
- On the occasion when using the switch with EN/IEC/GB ratings, use a 10 A fuse that complies IEC60269, either type gG.
- The durability of switch is depends on the operating condition Be sure to check the condition with actual using condition before using, and use with the number of times of operating without a performance problem.
- Otherwise, there is the possibility of spoiling the normal operation. Do not drop the switch.
- Do not connect a Single Limit Switch to two power supplies that are different in polarity or type. Risk of interference.
- Be sure to keep the load current less than the rated value. Otherwise, there is the possibility that the switch may be damage and/or burnout.
- Do not use the Switch by itself in atmospheres containing flammable or explosive gases. Arcs and heating resulting from switching may cause fire or explosion.
- Be sure to prevent the foreign materials such like a scrapped cable intrusion in to the switch when wiring. Otherwise, there is the possibility of spoiling the normal operation.
- Never wire to the wrong terminals.
- Using the Switch in a pressed-in state for an extended period of time can accelerate part deterioration and also lead to failure to return to the original position. Check the Switch beforehand, and perform periodic inspection and replacement.
- Do not store or use the switch with following place.
 - Where the temperature fluctuates greatly.
 - Where the humidity is very high and condensation may occur.
 - Where the vibration is too much.
 - Where receiving direct sunshine.
 - Where receiving salty wind.
 - Where exposed to cutting powder, machining chips, oil, and chemicals inside the protective doors.
 - Where exposed to cleansers, thinners, and other solvents
- Do not use or store the Switch in locations with corrosive gas, such as sulfuric gas (H₂S or SO₂), ammonium gas (NH₃), nitric gas (HNO₃), or chlorine gas (Cl₂), or high temperature and humidity. Otherwise, contact failure or corrosion damage may result.
- Do not disassemble and/or modify the switch at anytime.
- Otherwise, there is the possibility of spoiling the normal operation. Do not apply the force such like deformation and/or degeneration to the switch.
- If the Switch will not be switched ON or OFF for an extended period of time, contact reliability may degrade due to oxidation of the contact points, resulting in inadequate conductivity, which could lead to an accident.

Precautions for Correct Use

Operating Environment

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



- Constantly subjecting a Switch to vibration or shock can result in wear, which can lead to contact interference with contacts, operation failure, reduced durability, and other problems. Excessive vibration or shock can lead to false contact operation or damage. Install Switches in locations not subject to shock and vibration and in orientations that will not produce resonance.
- If there are materials that contain silicon components or phosphorus components in the vicinity of where the Switch is being used, these components may be converted into gas due to the type of the material or the operating temperature or humidity, resulting in inadequate conductivity. Examples of sources of silicon and phosphorous gas are shown below. Refer to these examples and implement countermeasures.

Examples of silicon gas sources

Sources

Silicon-based coating agents, silicon-based adhesives, silicon rubber, silicon oil/grease, silicon-based mold release agents, silicon filling agents, silicone power cables

Countermeasure details:

When a source of silicon gas exists, you are asked to suppress arcing with contact protective circuits, to remove this source from the vicinity of the Switch, or to change to a different material. Also, if you cannot avoid using the Switch in an environment where a source of silicon gas is present, check the Switch in the actual environment where it will be used and periodically inspect and replace the Switch.

Examples of phosphorus compound gas sources

Sources

Heat-shrinking tubes, lead wires, connectors, resin materials including red phosphorus, oil, industrial waste, decaying materials (garbage), seawater, insecticides, smoking materials, chemicals

Countermeasure details:

When a source of phosphorus compound gas exists, you are asked to remove this source from the vicinity of the Switch or to change to a different material. Also, if you cannot avoid using the Switch in an environment where a material including phosphorus (ammonium dihydrogen phosphate-based) components is present, check the Switch in the actual environment where it will be used and periodically inspect and replace the Switch.

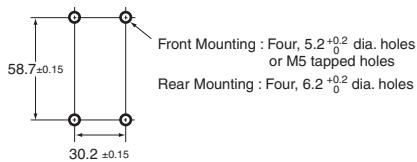
Examples of material changes:

- (1) Use M3.5-nylon insulation covered crimp terminals (round type) for wiring.
- (2) When using heat-shrinking tubes, select those that do not use phosphorous or that use water-resistant red phosphorus. You can make it difficult for the phosphorus reaction to progress and thereby suppress the generation of gas by using heat-shrinking tubes that have undergone surface (waterproofing) treatment.
- (3) Use OMRON SC Series connectors.

* The above examples do not guarantee the performance of the Switch. Handle situations as they arise according to your own judgment and evaluation of the actual device during use.

Installing the Switch

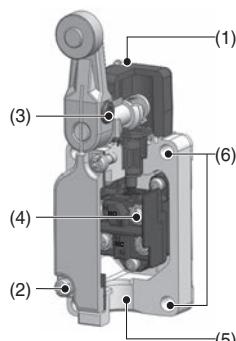
- To install the Switch, make a mounting panel, as shown in the following diagram, and tighten screws using the appropriate tightening torque.



* If the conduit size and ground terminal specifications are "with TS 1/2-14NPT ground terminal", the back mounting hole is 4-6.2 dia. $^{+0.2}_{-0}$.

Appropriate Tightening Torque

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



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

Using Switches for Micro Loads

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

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

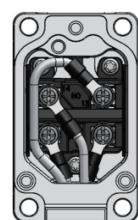
Note: The P level indicates the standard malfunction level at a reliability level of 60% (λ_{60}). (JISC5003) $\lambda_{60} = 0.1 \times 10^{-6}/$ operations indicates that the estimated malfunction rate is less than 1/10,000,000 operations with a reliability level of 60%.

Wiring

In the case of mounting screw

Basic models

- Use M3.5-nylon insulation covered crimp terminals (round type) for wiring. Ex.) N1.25-M3.5 (RAP1.25-3.5) (U.S.T. Mfg. Co.,Ltd.)
- Appropriate wire size is AWG16 (1.25 mm²).
- Do not supply electric power when wiring. Otherwise electric shock may result.
- Do not pull out the wires with excessive force. It may cause of coming off the wire.
- Avoid connecting the wires directly to the terminal. Instead, attach using a crimp terminal.
- In the case of indicator unit, to avoid interference between lump unit and crimp terminals, wire according to right wiring figure.
- Attach the indicator unit spring to terminal screw certainly, otherwise it's possible to be destroyed or shorted.
- The ground terminal is only installed on models with ground terminals.



In the case of prewired connector and direct connector

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

How to handle

Changing direction of the head

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

Built-in Switch

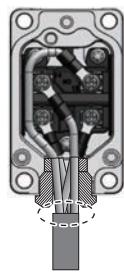
- Do not remove or replace the built-in switch. Risk of malfunctioning.

Overtravel Markers

- All Switches with Roller Lever Actuators except for Switches with Fork Lock Levers and Low-temperature Switches have a set position marker plate.
- To allow the roller lever type actuator to travel properly, set the roller lever according to the dog or cam stroke so that the arrowhead of the lever is positioned within the overtravel markers (pages 17, 18). This enables usage in the optimum state.

Conduit opening preparation

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



(1) Connector tube contains internal stranded wire



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



(3) Connector tube contains external jacket



Microload Applications

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

Operation indicator

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

Terminal Plate

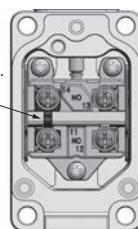
By using the Terminal Plate (sold separately), as shown in the following diagram, the Switch can be used as a single-polarity double-break switch.

WL-N TERMINAL PLATE



Terminal Plate

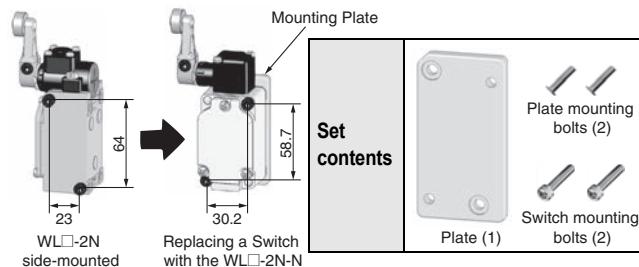
Attach the Terminal Plate so that the "COM" mark is oriented as shown on the left.



Terminal Plate Mounting Diagram

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

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



Replacing a Switch with the WL□-2N-N

Plate (1)

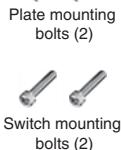


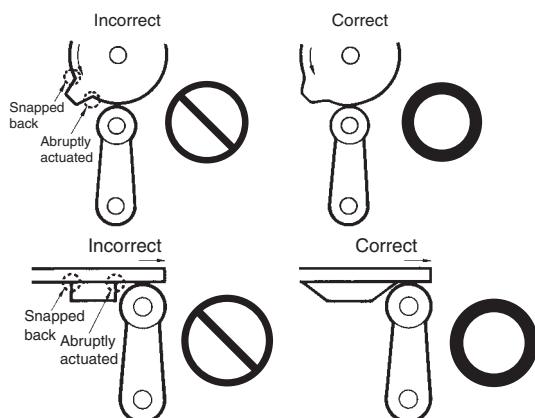
Plate mounting bolts (2)

Switch mounting bolts (2)

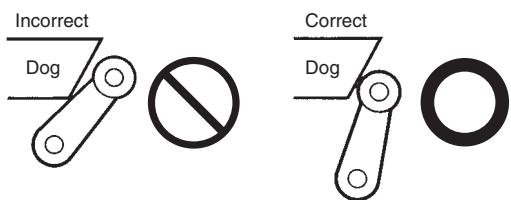
Operation Procedures

Operation

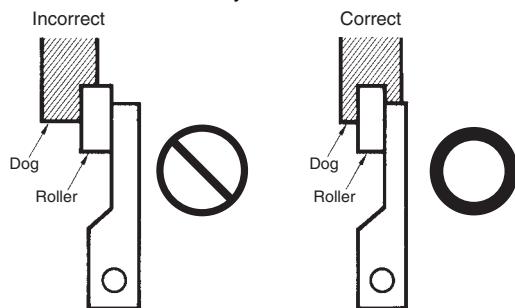
- Carefully determine the position and shape of the dog or cam so that the actuator will not abruptly snap back, thus causing shock. In order to operate the Limit Switch at a comparatively high speed, use a dog or cam that keeps the Limit Switch turned ON for a sufficient time so that the relay or valve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



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



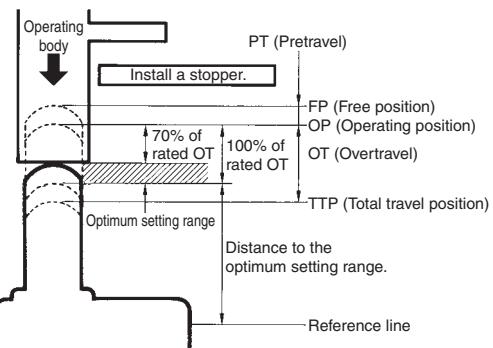
- Unbalanced force must not be imposed on the actuator. Otherwise, wear and tear on the actuator may result.



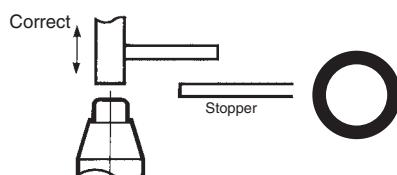
- With a roller actuator, the dog must touch the actuator at a right angle. The actuator or shaft may deform or break if the dog touches the actuator (roller) at an oblique angle.



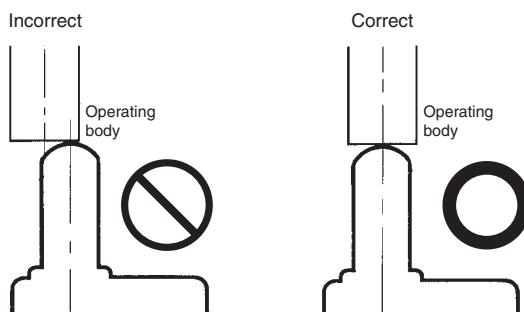
- Mount so that the actuator travel after operation (OT) is not exceeded. If the travel after operation (OT) exceeds the limit, switch failure could result. When mounting the Limit Switch, be sure to adjust the Limit Switch carefully while considering the whole movement of the actuator.



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



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

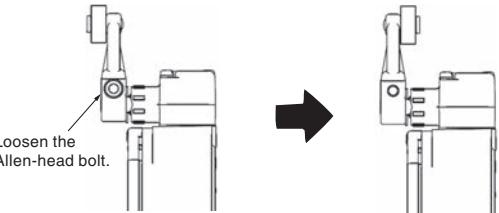
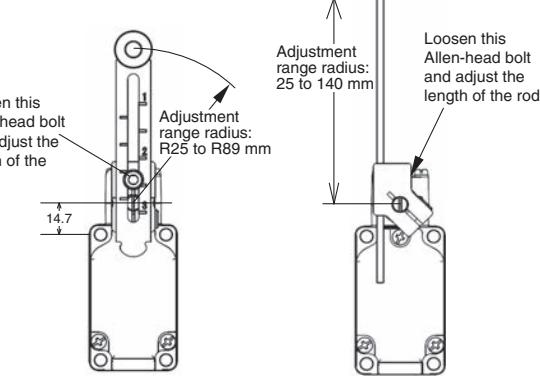
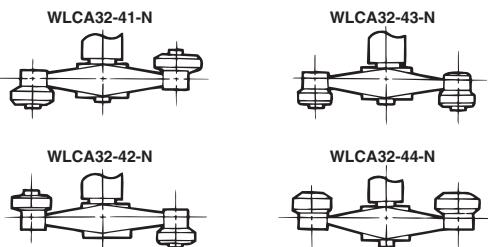


Others

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

Using the Switches

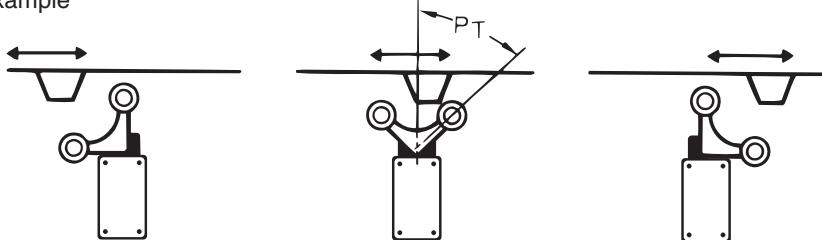
Item	Applicable models and Actuators	Details
Changing the Installation Position of the Actuator By loosening the Allen-head bolt on the actuator lever, the position of the actuator can be set anywhere within the 360°. With Operation Indicator-equipped Switches, the actuator lever comes in contact with the top of the indicator cover, so use caution when rotating and setting the lever. When the lever only moves forwards and backwards, it will not contact the lamp cover. (This does not apply to Long-life Models.)	Roller lever: (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGCA2, WLMCA2-N, WLMG2, WLMGCA2) Adjustable roller lever (WLCA12-N, WLCA12-2-N, WLCA12-2N-N, WLG12) Adjustable rod lever (WLCL-N, WLCL-2-N, WLCL-2N-N, WLGL, WLCL4-N, WLCL5-N)	
Changing the Orientation of the Head By removing the head screws (two or four screws), mounting in any of four orientations is possible. Be sure to change the plunger for internal operations at the same time. Note that this does not apply to the WLG2, WLMG2, WLG12, or WLGL. The roller plunger can be set in either of two positions at 90°.	Roller lever: (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGCA2, WLMCA2-N, WLMG2, WLMGCA2) Adjustable roller lever (WLCA12-N, WLCA12-2-N, WLCA12-2N-N, WLG12) Adjustable rod lever (WLCL-N, WLCL-2-N, WLCL-2N-N, WLGL, WLCL4-N, WLCL5-N) Horizontal plunger (WLSD□-N) Top-roller plunger (WLD2-N) Sealed top-roller plunger (WLD28-N) Fork lock lever (WLCA32-4□-N) Note: Does not include -RP60 Series or -141 Series	
Changing the Operating Direction By removing the Head on models which can operate on one-side only, and then changing the direction of the operational plunger, one of three operating directions can be selected. The tightening torque for the screws on the Head is 0.78 to 0.88 N·m. (The operating direction of the WLG2 (high-sensitivity model) cannot be changed.)	Roller lever: (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLCA2-7-N, WLCA2-8-N, WLMCA2-N) Adjustable roller lever (WLCA12-N, WLCA12-2-N, WLCA12-2N-N) Adjustable rod lever (WLCL-N, WLCL-2-N, WLCL-2N-N, WLCL4-N, WLCL5-N)	<p>Setting One-side Operation for Basic Models</p> <p>The output of the Switch will be changed, regardless of which direction the lever is pushed.</p> <p>The output of the Switch will only be changed when the lever is pushed in one direction.</p>
	Roller lever: (WLGCA2, WLMGCA2)	<p>Setting One-side Operation for High-precision Models</p> <p>The output of the Switch will be changed, regardless of which direction the lever is pushed.</p> <p>The output of the Switch will only be changed when the lever is pushed in one direction.</p>

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 lever: (WLCA2-N, WLCA2-2-N, WLCA2-2N-N, WLG2, WLCA2-7-N, WLCA2-8-N, WLGA2, WLMCA2-N, WLMG2, WLMGCA2) Fork lock lever (WLCA32-4□-N)	
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 lever (WLCA12-N, WLCA12-2-N, WLCA12-2N-N, WLG12) Adjustable rod lever (WLCL-N, WLCL-2-N, WLCL-2N-N, WLGL, WLCL4-N)	 <p>Adjustable Roller Levers: Adjustable Rod Levers:</p>
Selecting the Roller Position There are four types of Switches with Fork Lock Levers for use depending on the roller position.	Fork lock lever: (WLCA32-4□-N)	 <p>An explanation of the operation of fork lock levers is provided after this table.</p>

Operation of Fork Lock Levers

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

Example



NC terminal: ON

NO terminal: ON

NO terminal: ON

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