

General-purpose Limit Switch

WL

Wide Selection of Two-circuit Double-break Limit Switches

- Rugged diecast switch housing.
- High mechanical strength.
- Oiltight, waterproof and dustproof construction.
- Set position indicator plate for easy maintenance.

uC+E

Basic Models

■ Ordering Information

Actuator		Standard	Microload
Roller lever *	Short (R38)	WLCA2	WL01CA2
	Medium (R50)	WLCA2-7	WL01CA2-7
	Long (R63)	WLCA2-8	WL01CA2-8
	Flange mounting	WLCA2-31	WL01CA2-31
Adjustable lever*	Roller	WLCA12	WL01CA12
	Rod (140 mm)	WLCL	WL01CL
Fork lever lock		WLCA32-41 WLCA32-42 WLCA32-43	WL01CA32-41 WL01CA32-42 WLCA32-43
Plunger	Plain	WLD	WL01D
	Roller	WLD2	WL01D2
	Sealed roller	WLD28	WL01D28
	Ball	WLD3	WL01D3
Horizontal plunger	Plain	WLSD	WL01SD
	Roller	WLSD2	WL01SD2
	Ball	WLSD3	WL01SD3
Coil spring	6.5 dia.	WLNJ	WL01NJ
	5.0 dia.	WLNJ30	WL01NJ30
Steel wire	1.0 dia.	WLNJ-S2	WL01NJ-S2
Nylon wire	8.0 dia.	WLNJ-2	WL01NJ-2

Note: 1. WL Limit Switches (without flush mounting model) are offered with a choice of conduit threads conforming to various standards. When placing your order, add one of the following codes to the model number to indicate your desired conduit opening.

No symbol: G 1/2 parallel thread (JIS B0202)
 G: PG 13.5 (DIN) with ground terminal
 TS: 1/2-14NPT (ANSI) with ground terminal
 Y: M20 x 1.5 with ground terminal
 G1: G 1/2 parallel thread (JISB0202) with ground terminal

2. In addition to these models, high precision models (WLG□) are available for models whose actuator is marked with an asterisk* into table on the above.
3. Above models with ground terminal are EN60947-5-1 approved by TÜV Rheinland except WLCA2-31 and WL01CA2-31.

■ Specifications

1. General Ratings

Rated voltage	Non-inductive load				Inductive load			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	10 A	10 A	3 A	1.5 A	10 A		5 A	2.5 A
250 VAC	10 A	10 A	2 A	1 A	10 A		3 A	1.5 A
480 VAC	10 A	10 A	1.5 A	0.8 A	3 A		1.5 A	0.8 A
600 VAC	3 A	1 A	1 A	0.5 A	1.5 A		1 A	0.5 A
8 VDC	10 A		6 A	3 A	10 A		6 A	
14 VDC	10 A		6 A	3 A	10 A		6 A	
30 VDC	6 A		4 A	3 A	6 A		4 A	
125 VDC	0.8 A		0.2 A		0.8 A		0.2 A	
250 VDC	0.4 A		0.1 A		0.4 A		0.1 A	

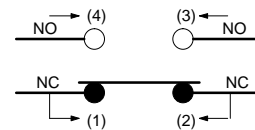
- Note:**
1. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
 2. Lamp load has an inrush current of 10 times the steady-state current.
 3. Motor load has an inrush current of 6 times the steady-state current.

Microvoltage/Current Load Model (WL01□)

Rated voltage	Resistive load
125 VAC	0.1 A
30 VDC	

Contact Form

Standard/Microload Models

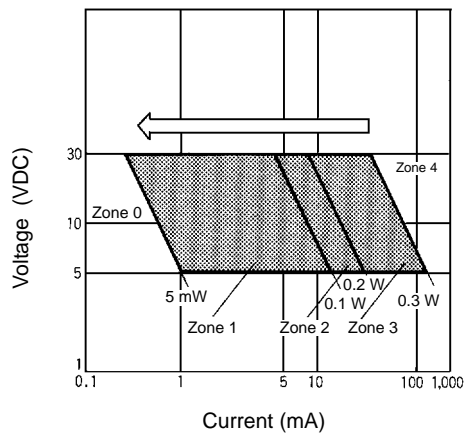


SPST-NO Model



Recommended Load Range (DC Only)

Zones 1 through 3



Note: Without neon lamp model.

2. EN60947-5-1 Ratings

Model	Category and rating	Thermal current (I _{the})	Indicator
WL□	AC-15 2 A/250 VAC DC-12 2 A/48 VDC	10 A	None
WL01□	AC-14 0.1 A/125 VAC DC-12 0.1 A/48 VDC	0.5 A	None
WL□-LE	AC-15 2 A/250 VAC	10 A	Neon lamp
WL01□-LE	AC-14 0.1 A/125 VAC	0.5 A	Neon lamp
WL□-LD	AC-15 2 A/115 VAC DC-12 2 A/48 VDC	10 A	LED
WL01□-LD	AC-14 0.1 A/115 VAC DC-12 0.1 A/48 VDC	0.5 A	LED

Characteristics

Operating speed	1 mm/s to 2 m/s (with WLCA2)
Operating frequency	Mechanical: 120 operations/min Electrical: 30 operations/min
Insulation resistance	100 MΩ min. (at 500 VDC)
Contact resistance	25 mΩ (initial)
Dielectric strength	1,000 VAC (600 VAC for overtravel model), 50/60 Hz for 1 min between non-continuous terminals 2,200 VAC, 50/60 Hz for 1 min between each terminal and non-current-carrying metal part and between each terminal and ground
Rated impulse withstand voltage (U_{imp})	4 kV
Rated insulation voltage (U_i)	300 VAC (EN60947-5-1)
Thermal current (I_{the})	10 A (0.5 A for micro load type) (EN60947-5-1)
Short-circuit protective device	10 A fuse (type gG, IEC269 approved, EN60947-5-1)
Conditional short circuit current	100 A (EN60947-5-1)
Operating environment pollution degree	3 (EN60947-5-1)
Protection against electric shock	Class I
Temperature rise	50° max.
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance (see note 1)	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 300 m/s ² (approx. 30G)
Ambient temperature	Operating: -10°C to 80°C (with no icing)
Ambient humidity	Operating: 95% max.
Life expectancy	Mechanical: 15,000,000 operations min. (see note 2) Electrical: See "Engineering Data".
Enclosure ratings	UL/CSA: 3, 4, and 13 IEC: IP67 JIS: Immersion-proof
Weight	Approx. 275 g (with WLCA2)

Note: 1. Excludes the coil spring models (-NJ).

2. Overtravel model, low differential model, wobble stick model, and micro load model: 10,000,000 operations min.

Approved Standards

UL (File No. E76675)/CSA (File No. LR45746)

Rating: A600 (standard type), A300 (WL□-LE type)

SEV (File No. 93.5, 51936, 01)

LR (File No. 88/10274 (E3))

TÜV Rheinland (File No. R9551016/Ground Terminal Model)

Consult OMRON for models approved by SEV or LR.

Operating Characteristics

Model	WLCA2 WL01CA2	WLCA2-7 WL01CA2-7	WLCA2-8 WL01CA2-8	WLPCA2 WL01PCA2	WLCA2-31 WL01CA2-31	WLCA12 WL01CA12 (see note 1)	WLCL WL01CL (see note 2)	WLCA32-41 to 43 WL01CA32-41 to 43
OF max.	13.34 N (1,360 gf)	10.2 N (1,040 gf)	8.04 N (820 gf)	13.34 N (1,360 gf)	13.34 N (1,360 gf)	13.34 N (1,360 gf)	1.39 N (142 gf)	11.77 N (1,200 gf)
RF min.	2.23 N (227 gf)	1.67 N (170 gf)	1.34 N (137 gf)	2.23 N (227 gf)	2.23 N (227 gf)	2.23 N (227 gf)	0.27 N (28 gf)	---
PT max.	15°±5°							50°±5°
OT min.	30°							35°
MD max.	12°							---
TT min.	40°							90°±10°

Note: 1. Measured at the arm length of 38 mm.

2. Measured at the rod length of 140 mm.

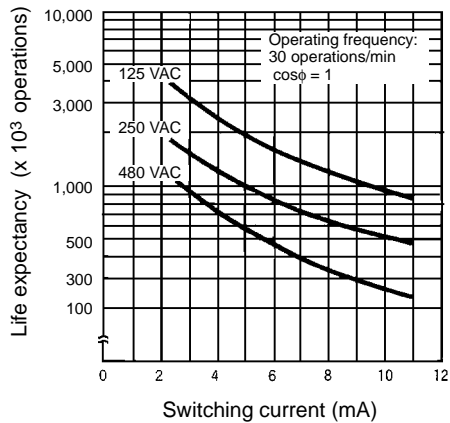
Model	WLD WL01D	WLD2 WL01D2	WLD28 WL01D28	WLD3 WL01D3	WLS WL01SD	WLS2 WL01SD2	WLS3 WL01SD3
OF max.	26.7 N (2,720 gf)	26.7 N (2,720 gf)	16.67 N (1,720 gf)	26.7 N (2,720 gf)	40.03 N (4,082 gf)	40.03 N (4,082 gf)	40.03 N (4,082 gf)
RF min.	8.92 N (910 gf)	8.92 N (910 gf)	4.41 N (450 gf)	8.92 N (910 gf)	8.81 N (907 gf)	8.81 N (907 gf)	8.81 N (907 gf)
PT max.	1.7 mm	1.7 mm	1.7 mm	1.7 mm	2.8 mm	2.8 mm	2.8 mm
OT min.	6.4 mm	5.6 mm	5.6 mm	4 mm	6.4 mm	5.6 mm	4 mm
MD max.	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm	1 mm
OP	34±0.8 mm	44±0.8 mm	44.5±0.8 mm	40.6±0.8 mm	54.2±0.8 mm	54.1±0.8 mm	---
TTP max.	29.5 mm	39.5 mm	41 mm	---	---	---	---

Model	WLNJ, WL01NJ (see note)	WLNJ30, WL01NJ30	WLNJ-S2, WL01NJ-S2	WLNJ-2, WL01NJ-2
OF max.	1.47 N (150 gf)	1.47 N (150 gf)	0.9 N (92 gf)	1.47 N (150 gf)
PT max.	20±10 mm	20±10 mm	40±20 mm	40±20 mm

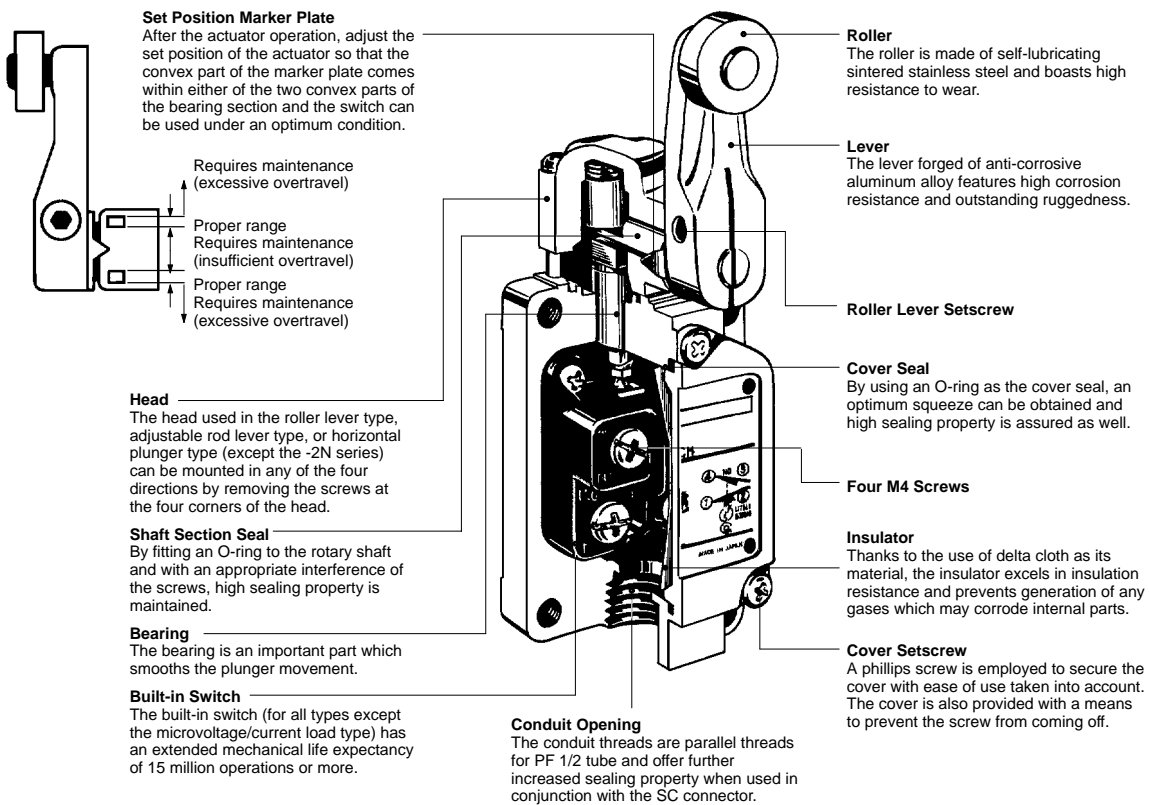
Note: Measured at the tip of the coil spring or steel wire.

■ Engineering Data

Electrical Life Expectancy



■ Nomenclature

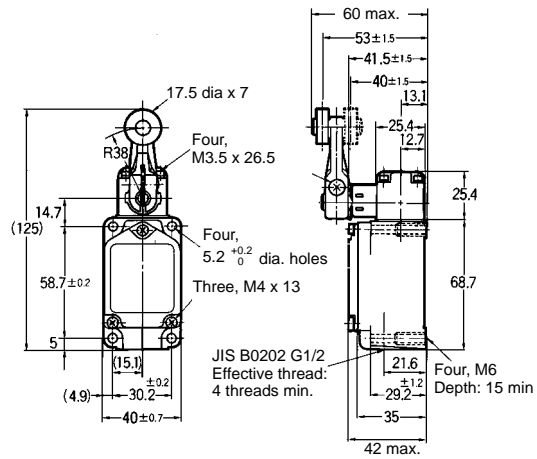
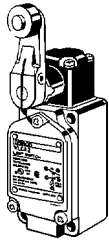


■ Dimensions

Note: 1. All units are in millimeters unless otherwise indicated.

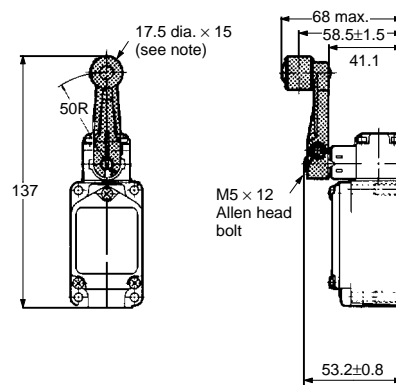
2. Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

WLCA2, WL01CA2



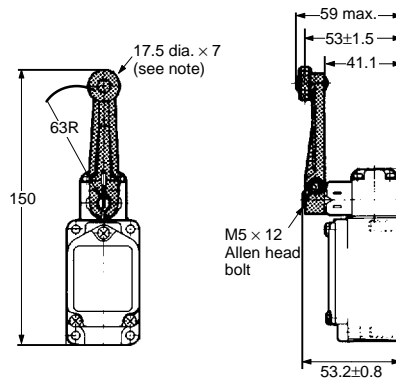
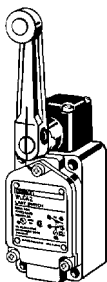
Note: Stainless sintered roller

WLCA2-7, WL01CA2-7



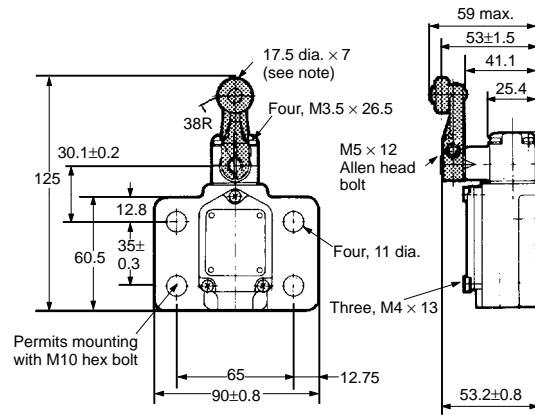
Note: Stainless sintered roller

WLCA2-8, WL01CA2-8



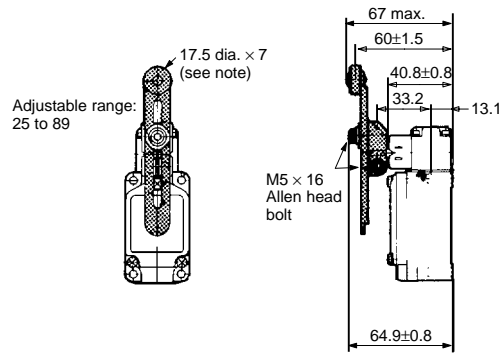
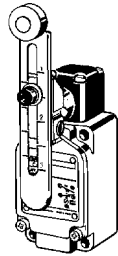
Note: Stainless sintered roller

WLCA2-31, WL01CA2-31



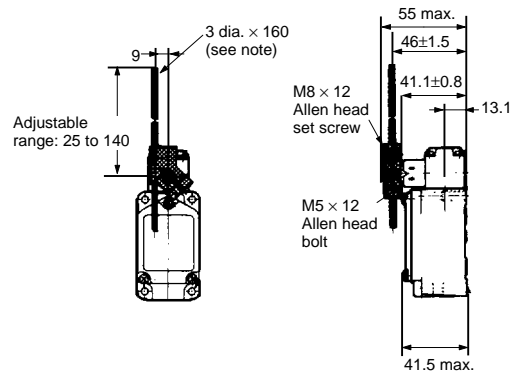
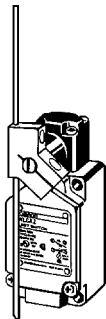
Note: Stainless sintered roller

WLCA12, WL01CA12



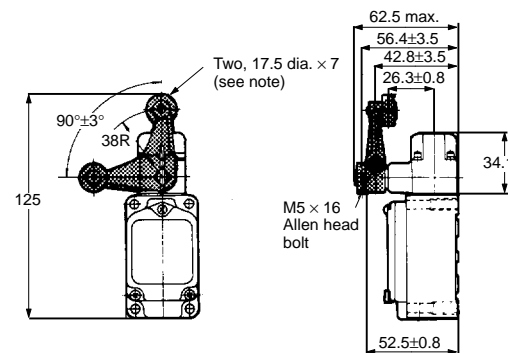
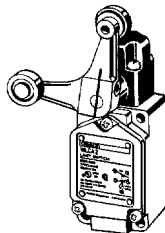
Note: Stainless sintered roller

WLCL, WL01CL



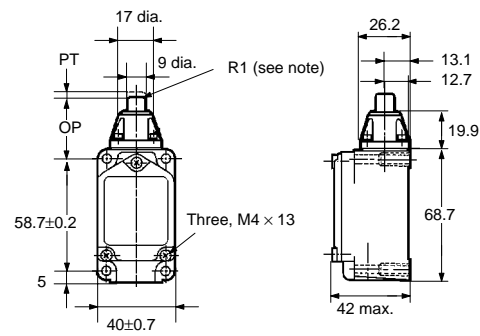
Note: Stainless steel rod

WLCA32-41 to 43, WL01CA32-41 to 43



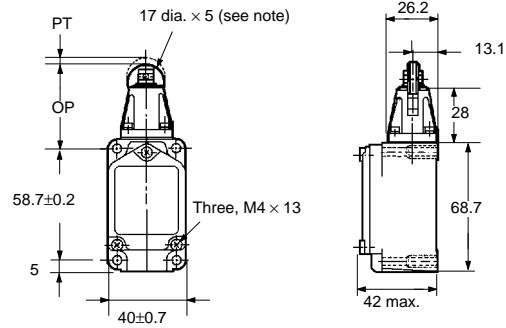
Note: Resin roller

WLD, WL01D



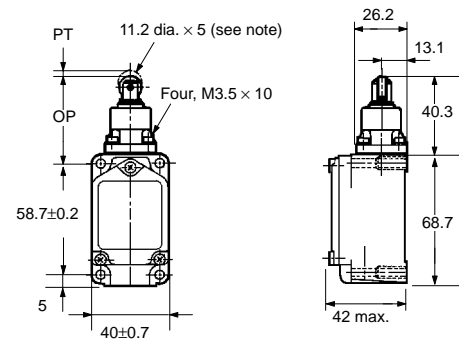
Note: Stainless sintered plunger

WLD2, WL01D2



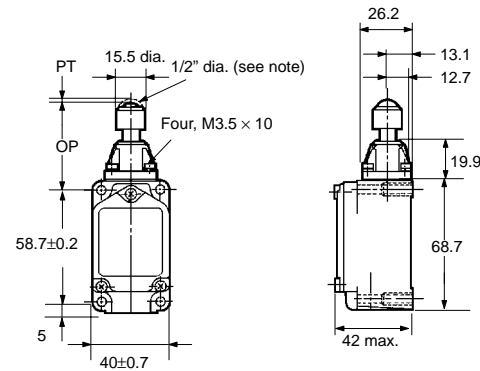
Note: Stainless sintered roller

WLD28, WL01D28



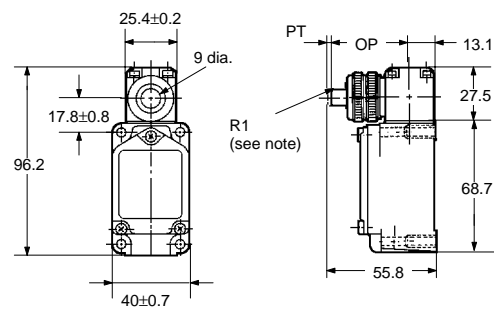
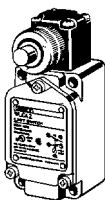
Note: Stainless sintered roller

WLD3, WL01D3



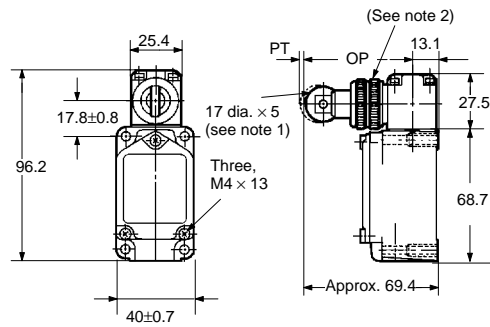
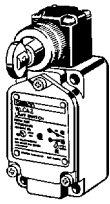
Note: Stainless sintered roller

WLSD, WL01SD



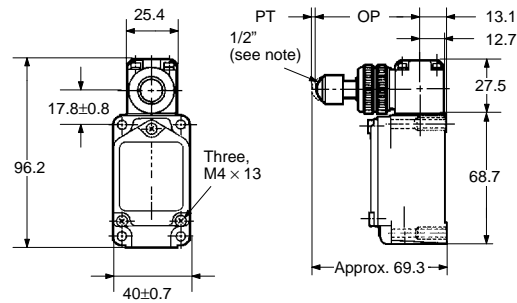
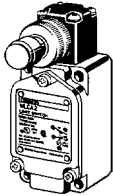
Note: Stainless steel plunger

WLSD2, WL01SD2



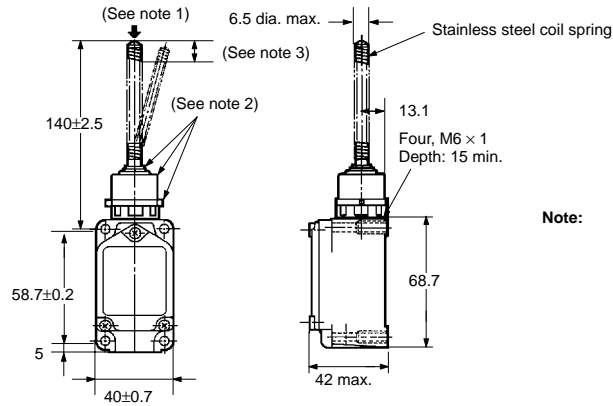
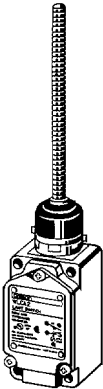
- Note:**
1. Stainless sintered roller
 2. Face nut (by loosening this nut, the direction of the roller may be changed arbitrarily)

WLSD3, WL01SD3



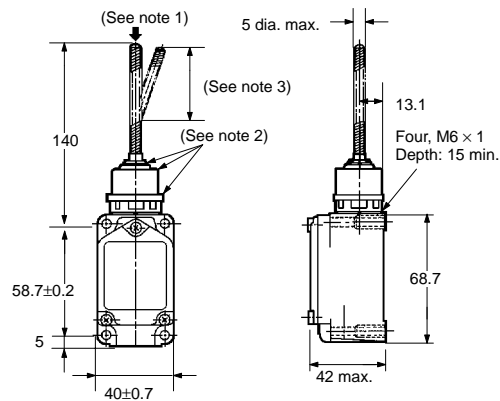
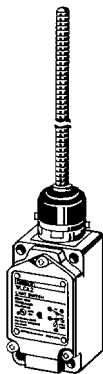
- Note:** Stainless steel ball

WLNJ, WL01NJ



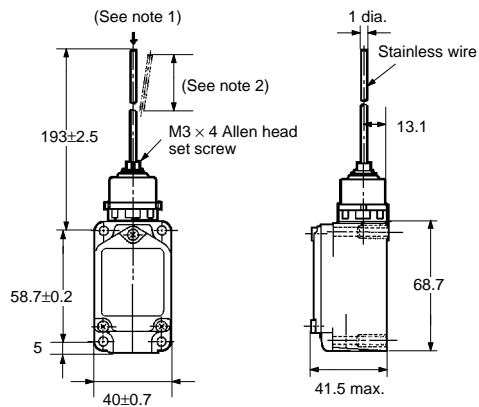
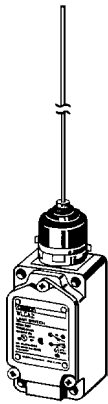
- Note:**
1. The coil spring may be operated from any direction except axial direction (\downarrow).
 2. Rubber cap and clamping band
 3. Optimum operating range of the coil spring is within $1/3$ of the entire length from the top end.

WLNJ-30, WL01NJ-30



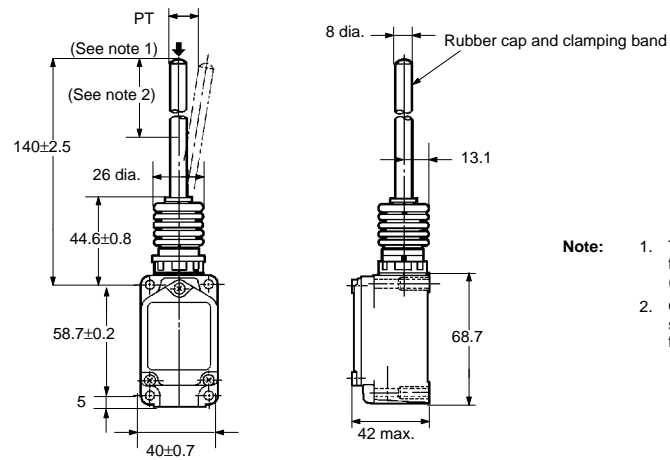
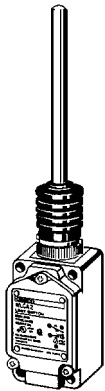
- Note:**
1. The coil spring may be operated from any direction except axial direction (\downarrow). No clearance occurs between the wires of this spring when warped or bent.
 2. Rubber cap and clamping band
 3. Optimum operating range of the coil spring is within $1/3$ of the entire length from the top end.

WLNJ-S2, WL01NJ-S2



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

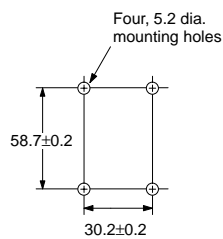
WLNJ2, WL01NJ-2



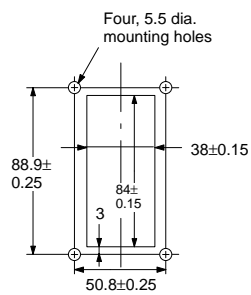
- Note:**
1. The polyamide resin rod may be operated from any direction except axial direction (↓).
 2. Optimum operating range of the coil spring is within 1/3 of its entire length from the top end.

Mounting Holes

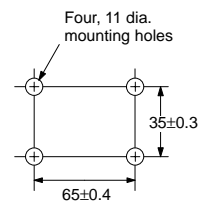
Basic Model



Flush-mount Model (WLPCA2)



Flange-mount Model (WLCA2-31)



Overtravel Models

The Overtravel Model is a limit switch which is provided with a greater OT to facilitate dog setting. Since this model is identical to the Basic Model in dimensions, both models are interchangeable.

The Overtravel Model is classified into three versions; general-purpose, high-sensitivity, and -2N series.

■ Ordering Information

Actuator			General-purpose		High-sensitivity		-2N series	
			Standard	Microload	Standard	Microload	Standard	Microload
Roller lever	Short (R38)		WLH2	WL01H2	WLG2	WL01G2	WLCA2-2N	WL01CA2-2N
	Large nylon		---	---	---	---	WLCA2-26N	WL01CA2-26N
Adjustable lever	Roller		WLH12	WL01H12	WLG12	WL01G12	WLCA12-2N	WL01CA12-2N
	Rod	140 mm	WLHL	WL01HL	WLGL	WL01GL	WLCL-2N	WL01CL-2N
		380 mm	WLHAL4	WL01HAL4	---	---	---	---
		Spring	WLHAL5	WL01HAL5	---	---	---	---

Note: When placing your order, add one of the following codes to the model number to indicate your desired conduit opening.

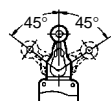
No symbol: G 1/2 parallel thread (JIS B0202)

G: PG 13.5 (DIN)

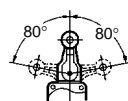
TS: 1/2-14NPT (ANSI)

Y: 3/4-16BSC (BS 811)

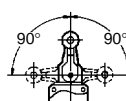
Basic Model



Overtravel Model (General-purpose, High-sensitivity)



Overtravel Model (-2N Series)



Accessories (Order Separately)

Connectors

Model	Application
SC-1 to SC-5	For cabtyre cables
SC-21 to SC-25	For cabtyre cables and 11 (corrosion-resistant type)
SC-1PT to SC-5PT	For cabtyre cables

■ Specifications

Ratings/Characteristics

Same as the Basic Models with the following exceptions.

- Mechanical life expectancy: 10,000,000 operations min. (high-sensitivity models)
- Dielectric strength: 600 VAC, 50/60 Hz for 1 min between non-continuous terminals;
1,500 VAC, 50/60 Hz for 1 min between each terminal and non-current-carrying metal part, and
between each terminal and ground

Operating Characteristics

General-purpose/High-sensitivity Models

Model	WLH2 WL01H2	WLG2 WL01G2	WLH12 WL01H12	WLG12 WL01G12	WLHL WL01HL	WLGL WL01GL
OF max.	9.81 N (1,000 gf)	9.81 N (1,000 gf)	9.81 N (1,000 gf)	9.81 N (1,000 gf)	2.84 N (290 gf)	2.84 N (290 gf)
RF min.	0.98 N (100 gf)	0.98 N (100 gf)	0.98 N (100 gf)	0.98 N (100 gf)	0.25 N (25 gf)	0.25 N (25 gf)
PT max.	15°±5°	9° to 12°	15°±5°	9° to 12°	15°±5°	9° to 12°
OT min.	55°	65°	55°	65°	55°	65°
MD max.	12°	7°	12°	7°	12°	7°
TT	80°±5°					

Note: 1. Measured at the arm length of 38 mm.

2. Measured at the rod length of 140 mm.

-2N Series

Model	WLCA2-2N WL01CA2-2N	WLCA2-26N WL01CA2-26N	WLCA12-2N WL01CA12-2N	WLCL-2N WL01CL-2N
OF max.	9.61 N (980 gf)			2.84 N (290 gf)
RF min.	1.18 N (120 gf)			0.25 N (25 gf)
PT max.	20°			20°
OT min.	70°			70°
MD max.	10°			10°
TT	90°			

Note: 1. Measured at the arm length of 38 mm.
2. Measured at the rod length of 140 mm.

Approved Standards

UL (File No. E76675), CSA (File No. LR45746), and TÜV Rheinland (file No. R9551016/ground terminal model)

■ Operation

General-purpose/High-sensitivity

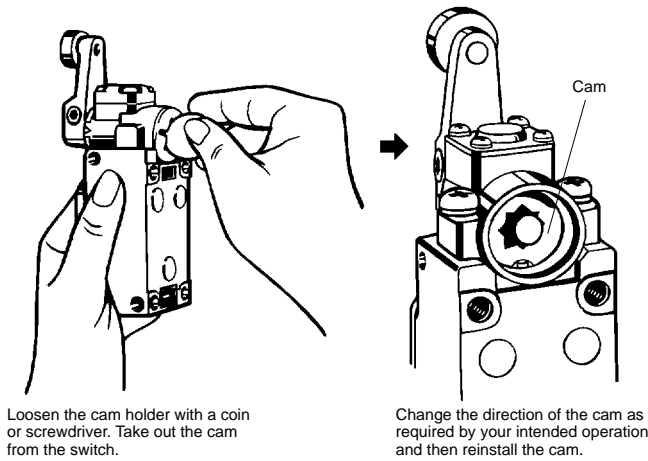
The head of general-purpose/high-sensitivity switch can be installed in any to the four directions.

80° operation on only one side: impossible
80° operation on either side: possible

-2N Series

The head of -2N series switch can be installed only in two directions, forward and backward.

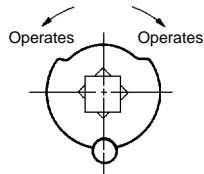
90° operation on only one side: possible
90° operation on either side: possible



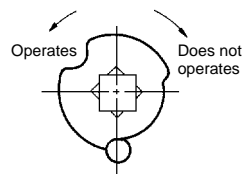
90° operation on one side is possible by simply changing the direction of the cam.

Relationship of Cam to Operation as Observed from the Rear of Switch

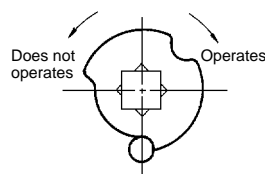
Operation on Both Sides



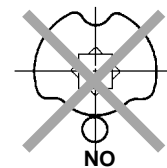
Operation on One Side



Operation on One Side



Avoid This Combination



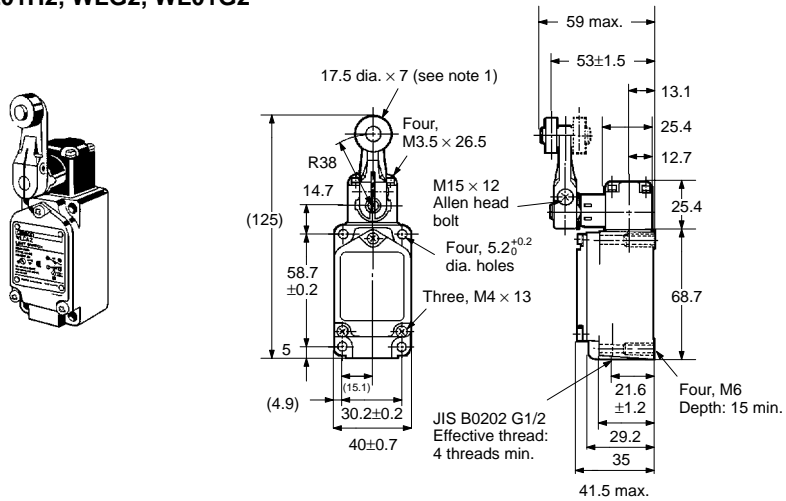
■ Dimensions

Note: 1. All units are in millimeters unless otherwise indicated.

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

General-purpose/High-sensitivity Models

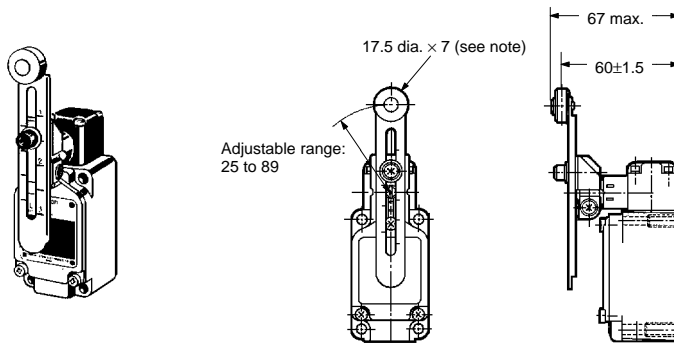
WLH2, WL01H2, WLG2, WL01G2



Note:

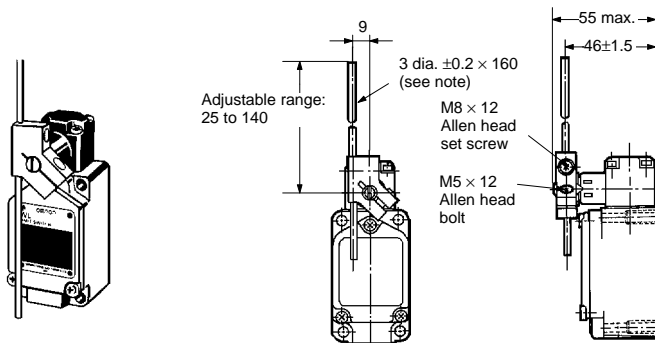
1. Stainless sintered roller
2. WL□G2 is identical to other models except in the shape of the operation indicating plate.

WLH12, WL01H12, WLG12, WL01G12



Note: Stainless sintered roller

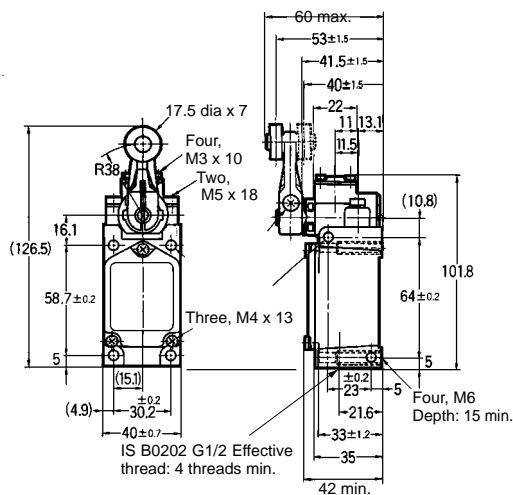
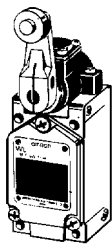
WLHL, WL01HL, WLGL, WL01GL



Note: Stainless steel rod

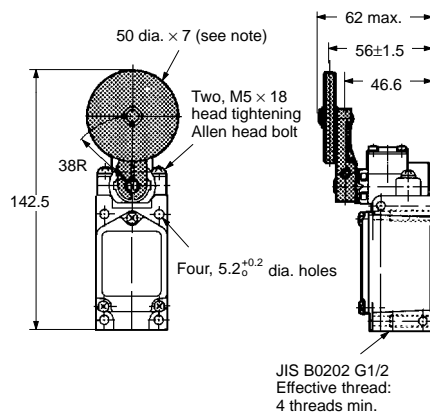
-2N Series

WLCA2-2N, WL01CA-2N



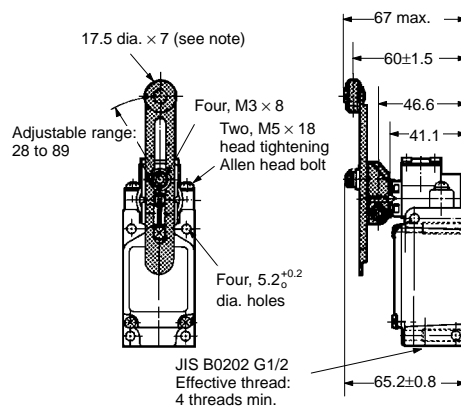
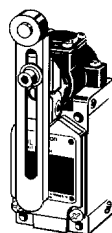
Note: Stainless sintered roller

WLCA2-26N, WL01CA2-26N



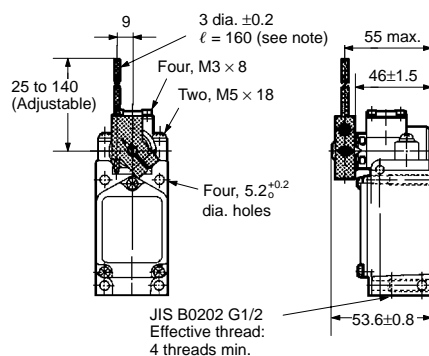
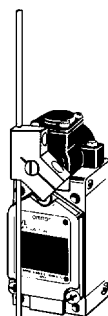
Note: Nylon roller

WLCA12-2N, WL01CA12-2N



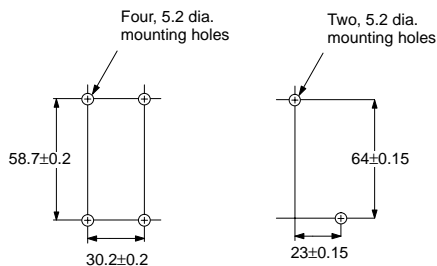
Note: Stainless sintered roller

WLCL-2N, WL01CL-2N



Note: Stainless steel rod

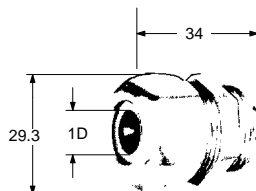
Mounting Holes



Accessories (Order Separately)

SC Connectors

A variety of connectors are available to provide the limit switch with improved sealing property, particularly of the conduit opening for cable.



Model	Inner diameter (ID) (mm)	Conduit
SC-1 to SC-5	7, 9, 12.5, 14, and 11	G1/2
SC-21 to SC-25		
SC-1PT to SC-5PT		1/2-14 NPT

Where IP67 protection is required, apply sealing tape between connector and conduit opening. Cable diameter should be 5.5 to 14 mm.

■ Precautions

Tightening Torque

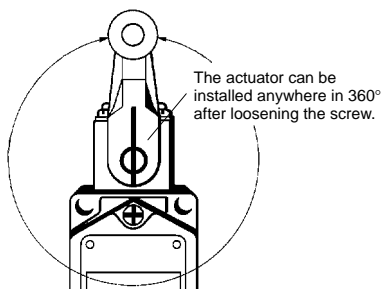
When mounting switch to plate: 4.9 to 5.9 N • m (50 to 60 kgf • cm)

When mounting cover to switch body: 1.2 to 1.4 N • m (12 to 14 kgf • cm)

When mounting head to switch body: 0.8 to 0.9 N • m (8 to 9 kgf • cm)

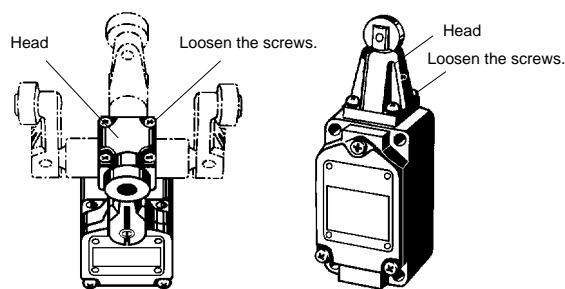
Head and Lever Positions

- Installation position of the actuator can be varied.



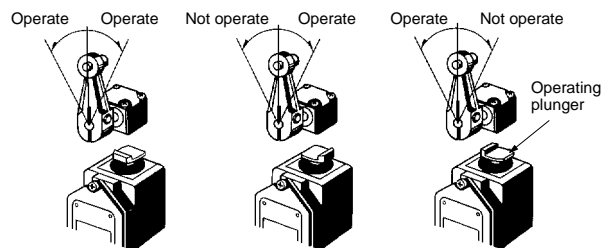
Applicable actuator: Roller lever (WLCA□)
Rod lever (WLCL)

- Direction of the head can be varied.



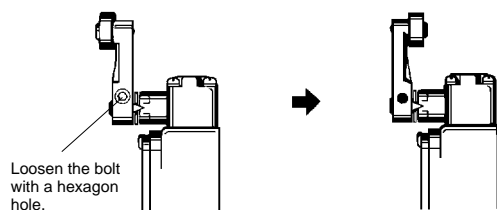
Applicable actuator: Roller lever (WLCA□)
Rod lever (WLCL)
Horizontal plunger (WLSD□)
Roller plunger (WLD2/WLD28)

- Operating direction can be varied.



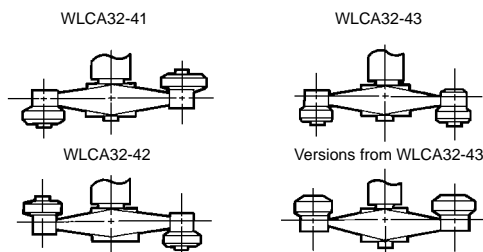
Applicable actuator: Roller lever (WLCA□)
Rod lever (WLCL)

- Roller may be installed in the shaft side (inside).



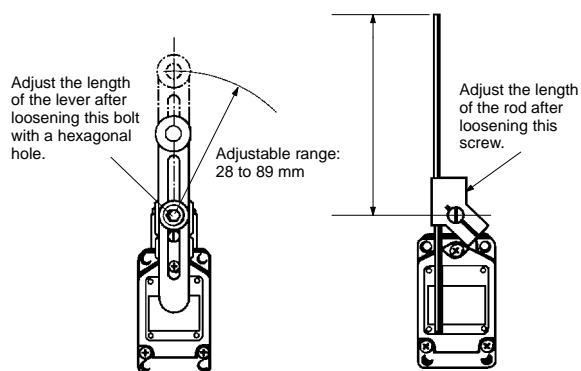
Applicable actuator: Roller lever (WLCA□)
Fork lever lock (WLCA32-4□(P))

- Roller position can be selected.



Applicable actuator: Fork lever lock (WLCA32-4□)

- Adjustable length of lever or rod.

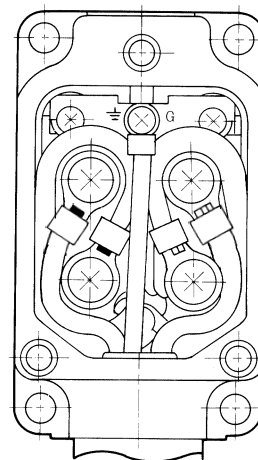


Applicable actuator: Adjustable roller lever (WLCA12 etc.)
Rod lever (WLCL etc.)

Wiring

Securely connect the lead to terminals with a tightening torque of 0.6 to 0.8 N • m (6 to 8 kgf • cm). M4-size round solderless terminals with an insulation tube are recommended. The conductor size should be 1.25 mm².

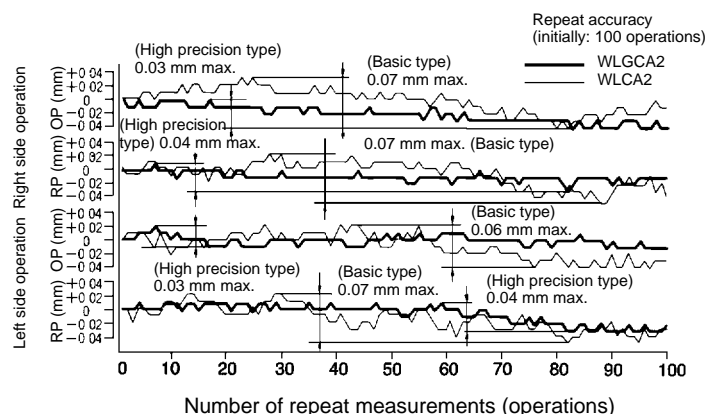
Recommended Wiring Style



High Precision Model

The high precision model features a pretravel of 5° (as compared with 20° for the Basic Models) and a repeat accuracy twice as great as the Basic Model. (See the graph below).

The high precision model switch is ideal for positioning control of machine tools.



Ordering Information

Model	WLG□
-------	------

High precision models are available for models with roller lever, adjustable lever, and Fork lever lock actuators. To order, be sure to add G after the WL in the model number.

Specifications

Ratings/Characteristics

Same as the Basic Models.

Operating Characteristics

Model	WLGA2, WL01GCA2, WLGCA2	WLGA2-7	WLGA2-8
OF max.	13.3 N (1,360 gf)	10.2 N (1,040 gf)	8.04 N (820 gf)
RF min.	1.4 N (150 gf)	0.99 N (110 gf)	0.9 N (90 gf)
PT max.	5+2°/-0	5°	5°
OT min.	40°	40°	40°
MD max.	3°	3°	3°

Approved Standards

UL (File No. E76675), CSA (File No. LR45746), and TÜV Rheinland (file No. R9551016/ground terminal model)

Dimensions

Same as the Basic Models.

Lamp Equipped Models

The operating condition of the switch can be monitored with a neon lamp or LED, thus facilitating circuit check and troubleshooting.

Ordering Information

Item	Rated voltage	Leakage current	Switch with lamp	Cover with lamp
Neon lamp	125 VAC	Approx. 0.6 mA	WL□-LE (see note 1)	WL-LE
	250 VAC	Approx. 1.9 mA		
LED	10 to 115 VAC 10 to 115 VDC	Approx. 1 mA	WL-□LD (see note 1)	WL-LD

- Note:**
- When placing your order, specify the model number by inserting the required actuator code (e.g., CA2, D, NJ) in the blank.
 - When connecting a limit switch to a programmable controller, use WL□-LE or WL□-LD with small leakage current.
 - The models listed in the table above are general-purpose models. When ordering a plug-in model, please specify the model with operation indicator.
 - Factory setting is "light-on when not operated". So, when using the limit switch for "light-on when operated", first dismount the switch unit from the housing, rotate the lamp holder 180°, then replace the unit to the housing.

■ Specifications/Dimensions

Same as the Basic Models.

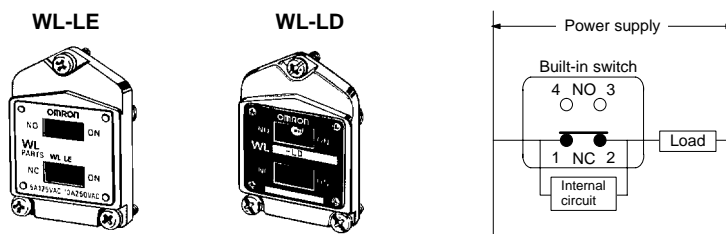
Approved Standards

UL (File No. E76675), CSA (File No. LR45746), and TÜV Rheinland (file No. R9551016/ground terminal model)

■ Operation

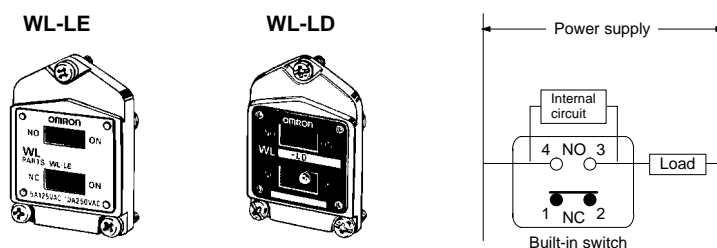
Lights When Operating

Light-on when operating means the case the lamp lights when the limit switch contacts (NC) release at the time the actuator rotates or is pushed down.



Lights When Not Operating

Light-on when not operating means the lamp remains lit when the actuator is free, and the lamp goes off when the limit switch contacts (NO) close at the time the actuator rotates or is pushed down.



Special Hermetic Model

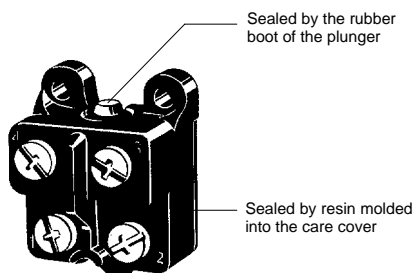
■ Ordering Information

Model	WL□-55
-------	--------

This model features a hermetically sealed built-in switch with a dripproof construction. The switch is most suitable for applications where the switch is subject to appreciable splashes of grinding fluid, oil or water. The molded terminal version, whose lead outlet is molded of resin to improve sealing performance, is also available.

All WL switches except the low temperature model, heat resistive model and plug-in model, can be fabricated into the special hermetic model.

WL10FB3-55



Note: Employs the same wiring method as the Basic Models. Use SC Connector for the conduit opening when wiring.

■ Specifications/Dimensions

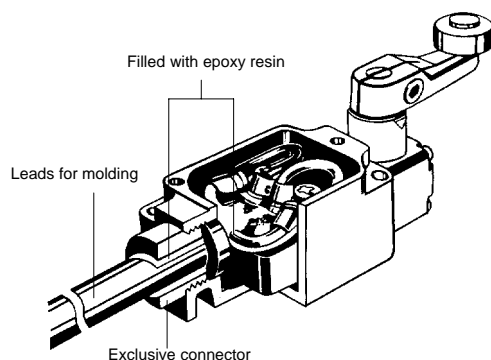
Same as the Basic Models.

Molded Terminal Models

■ Ordering Information

Model	WL□-136, WL□-139
-------	------------------

All WL switches except the lamp equipped model, low temperature model, heat resistive model and plug-in model, can be fabricated into the molded terminal model.



Note: Molded leads in a vinyl cabtyre cable (VCT) are available with a choice of cable length, finishing OD and number of conductors.

WL-□136: Conduit opening is resin molded.
The case cover is removable.

WL-□139: Conduit opening and case cover are resin molded together.
The case cover cannot be removed.

Low Temperature/Heat Resistive Models

■ Ordering Information

These models can be used in a wide range of operating temperatures (low temperature model: -40°C to 40°C , heat resistive model: 5°C to 120°C). Silicone rubber is used as the low temperature and heat resistive rubber materials for O-ring and gasket.

WL□-TC	Low temperature
WL□-TH	Heat resistive

Low Temperature Model

All WL switches except the lamp equipped model, special hermetic model, molded terminal model and heat sensitive model can be fabricated into the low temperature model.

Heat Resistive Model

All WL switches except the lamp equipped model, special hermetic model, molded terminal model, corrosion-proof model, large nylon roller lever model (WLCA2-26N), sealed roller model and coil spring model (WLNJ-2) can be fabricated into the heat resistive model.

■ Specifications/Dimensions

Same as the Basic Models with the following exception.

- Ambient operating temperature: Low temperature: -40°C to 40°C
Heat resistive: 5°C to 120°C

Approved Standards

UL (File No. E76675), CSA (File No. LR45746), and TÜV Rheinland (file No. R9551016/ground terminal model)

Corrosion-proof Model

■ Ordering Information

Model	WL□-RP
-------	--------

Diecast parts such as the switch box are made of corrosion-proof aluminum. Rubber sealing parts are made of fluorine rubber which aids in resisting oil, chemicals and adverse weather condition. Moreover, exposed nuts and screws are made of stainless steel, thus further improving corrosion-proof performance. Moving and rotary parts such as rollers are made of sintered stainless steel or stainless steel.

All WL switches except the overtravel model -2N series, lamp equipped model, low temperature model, heat resistive model, fork lever lock model (WLCA32-41 to 43) and flange-mounted model can be fabricated into the corrosion-proof model.

■ Specifications/Dimensions

Same as the Basic Models.

Approved Standards

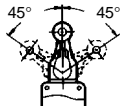


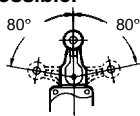
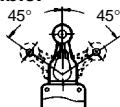


UL (File No. E76675), CSA (File No. LR45746), and TÜV Rheinland (file No. R9551016/ground terminal model)

Spatter Prevention Models

This type is most effective in arc welding line or the places where cutting powder is spattered.

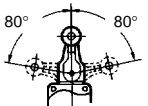


■ Ordering Information

All models are approved by UL and CSA standards.


Actuator			Neon lamp		LED
Classification	Total travel (TT)	Type	125 VAC	250 VAC	10 to 115 VAC/VDC
			Approx. 0.6 mA	Approx. 1.9 mA	Approx. 1.0 mA
Standard	One-side operation is possible. 	Double nut lever 	WLCA2-LEAS		WLCA2-LDAS
		Allen-head lever 	WLCA2-LES		WLCA2-LDS
Overtravel	General High-sensitivity 	Double nut lever	WLH2-LEAS		WLH2-LDAS
		Allen-head lever	WLH2-LES		WLH2-LDS
		Double nut lever	WLHCA2-2LAS		---
		Allen-head lever	WLHCA2-2LS		
		Double nut lever	WLG2-LEAS		WLG2-LDAS
		Allen-head lever	WLG2-LES		WLG2-LDS
High-precision	One-side operation is possible. 	Double nut lever 	WLGA2-LEAS		WLGA2-LDAS
		Allen-head lever 	WLGA2-LES		WLGA2-LDS

Note: Consult OMRON for microload WL01□ model, and normally closed WLA□ model.






SPST-NO Models

Actuator			Neon lamp	
Classification	Total travel (TT)	Type	125 VAC	250 VAC
			Approx. 0.6 mA	Approx. 1.9 mA
Overtravel	High-sensitivity 	Double nut lever 	WL1AL5-AS	
		Allen-head lever 	WL1AL5-S	

Plunger Models

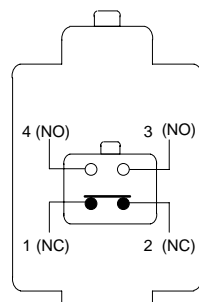
Actuator	Neon lamp		LED
Classification	125 VAC	250 VAC	10 to 115 VAC/VDC
	Approx. 0.6 mA	Approx. 1.9 mA	Approx. 1.0 mA
Seal top-roller plunger 	WLD28-LES		WLD28-LDS

Seal Top-roller Plunger

		Double nut lever 	Allen-head lever 	Lamp cover 
WLBCA2-LES (example)	WL-1H1100S (WLCA2-□, WLGA2-□)	Roller lever WL-1A105S (Symmetrical back and forth)	Roller lever WL-1A103S (Symmetrical back and forth)	Neon lamp WL-LES
	WL2H1100S (WLH2-□, WHG2-□, WLHCA2-2LS, WL1A1L5-AS)			LED WL-LDS

Contact Form

Standard Model SPST-NO Model



■ Specifications Ratings

Model	Rated voltage	Non-inductive load				Inductive load			
		Resistive load		Lamp load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
WLCA2-LE□ WLH2-LE□ WLGA2-LE□ WLG2-LE□ WLD28-LES	125 VAC	10 A		3 A	1.5 A	10 A		5 A	2.5 A
	250 VAC	10 A		2 A	1 A	10 A		3 A	1.5 A
	125 VDC	0.8 A		0.2 A	0.2 A	0.8 A		0.2 A	0.2 A
	250 VDC	0.4 A		0.1 A	0.1 A	0.4 A		0.1 A	0.1 A
WLHCA2-2L□	125 VAC	5 A		1.5 A	0.7 A	5 A		2.5 A	1.2 A
	250 VAC	5 A		1 A	0.5 A	5 A		1.5 A	0.7 A
	125 VDC	0.4 A		0.1 A	0.1 A	0.4 A		0.1 A	
	250 VDC	0.2 A		0.05 A	0.05 A	0.02 A		0.05 A	
WL1AL5-□	125 VAC	---	1 A	---		---		---	
	250 VAC	---	1 A	---		---		---	
WLCA2-LD□ WLH2-LD□ WLGA2-LD□ WLG2-LD□ WLD28-LDS	115 VAC	10 A		3 A	1.5 A	10 A		5 A	2.5 A
	12 VDC	10 A		6 A	3 A	10 A		6 A	
	24 VDC	6 A		4 A	3 A	6 A		4 A	
	48 VDC	3 A		2 A	1.5 A	3 A		2 A	

- Note:**
1. Inductive loads have a power factor of 0.4 min. (AC) and a time constant of 7 ms max. (DC).
 2. Lamp load has an inrush current of 10 times the steady-state current.
 3. Motor load has an inrush current of 6 times the steady-state current.

Characteristics

Operating speed	1 mm/s to 2 m/s (with WLCA2-□)
Operating frequency	Mechanical: 120 operations/min Electrical: 30 operations/min
Inrush current	NC: 30 A max. (15 A max. for WL1AL5-AS overtravel (high-sensitivity) models) NO: 20 A max. (10 A max. for WL1AL5-AS overtravel (high-sensitivity) models)
Insulation resistance	100 MΩ min. (at 500 VDC) between terminal of same polarity and between each terminal and non-current-carrying metal part
Contact resistance	25 mΩ max. (initial)
Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between terminal of same polarity 2,200 VAC (1,500 VAC for over travel (high-sensitivity) model), 50/60 Hz for 1 min between current-carrying metal part and ground, and between non-current-carrying metal part
Temperature rise	50° max.
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
Shock resistance	Destruction: 1,000 m/s ² (approx. 100G) Malfunction: 300 m/s ² (approx. 30G)
Ambient temperature (see note)	Operating: -10°C to 80°C
Ambient humidity	Operating: 95% max.
Life expectancy	Mechanical: 15,000,000 operations min. (10,000,000 operations min. for standard and high-sensitivity of overtravel model) Electrical: 750,000 operations min. (500,000 operations min. for high-sensitivity model)
Weight	Approx. 275 g (with WLCA2-□)

Note: Temperature range below 0°C are based on absence freezing moisture or water.

Operating Characteristics

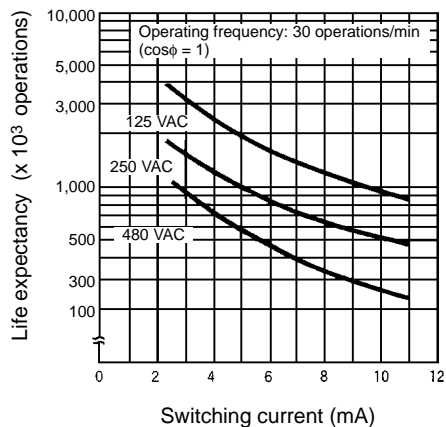
Type	Standard	Overtravel		High-precision	Seal top-roller plunger
		Standard	High-sensitivity		
OF max.	13.34 N (1,360 gf)	9.81 N (1,000 gf)	9.81 N (1,000 gf)	13.34 N (1,360 gf)	16.67 N (1,700 gf)
RF min.	2.23 N (227 gf)	0.98 N (100 gf)	0.98 N (100 gf)	1.47 N (150 gf)	4.41 N (450 gf)
PT max.	15°±5°	15°±5°	10°+2°/-1°	5°+2°/-1°	1.7 mm
OT min.	30°	55°	65°	40°	5.6 mm
MD max.	12°	12°	7°	3°	1 mm
OP	---				44±0.8 mm
TTP max.	---				39.5 mm

Approved Standards

UL (File No. E76675) and CSA (File No. LR45746)

■ Engineering Data

Electrical Life Expectancy



■ Nomenclature

Double Nut Lever

Roller, Roller Axis

Using stainless steel prevents spatter from adhering.

Operating Lever

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

Lamp Cover

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

SUS304 is used for double nut.

Screws

SUS304 is used, preventing spatter from adhering.

Head Cap

Using Teflon prevents spatter from adhering. Note: Spatter means the Zn powder produced when welding.

Adhering spatter to the limit switch may cause malfunction of lower or lamp cover.

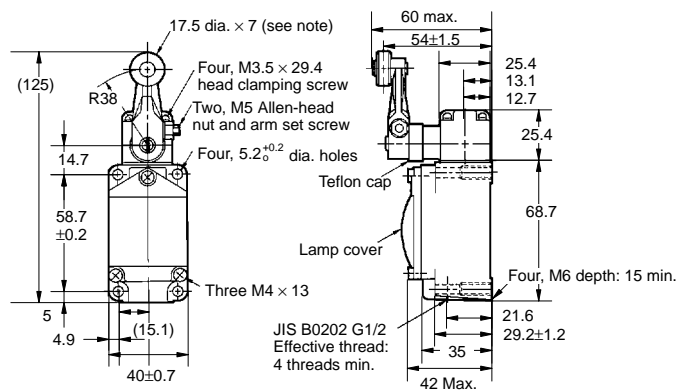
Making no gap prevents spatter powder from clogging.

Allen-head Lever

■ Dimensions

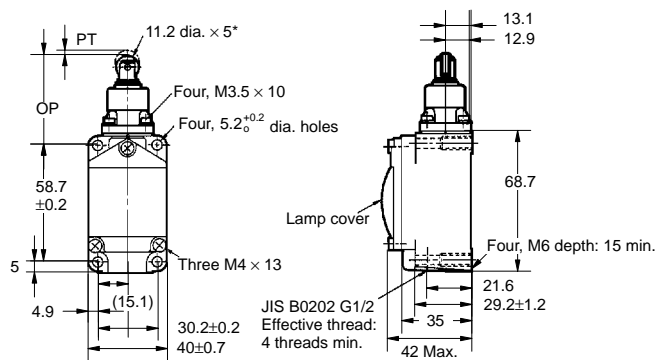
- Note:**
1. All units are in millimeters unless otherwise indicated.
 2. Unless otherwise indicated, a tolerance of ± 0.4 mm applies to all dimensions.

Roller Lever Model



Note: Stainless steel roller

Seal Top-roller Plunger Model



Note: Stainless steel roller

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. C01-E1-11