

Limit Switch

KXL Series

Part Number Description

KXL - **①** **②**

① Head Type

301 : Push Plunger	706 : Ø50 Adjustable Roller Lever - Aluminum
302 : Roller Plunger	726 : Ø50 Adjustable Roller Lever - Rubber
303 : Ball Plunger	717 : Yoke Roller Lever
702 : Roller Lever	727 : Yoke Roller Lever
703 : Adjustable Roller Lever	737 : Yoke Roller Lever
713 : Adjustable Roller Short Lever	747 : Yoke Roller Lever
704 : Adjustable Rod Lever	901 : Spring Rod
705 : Ø50 Roller Lever - Aluminum	902 : Spring Wire
725 : Ø50 Roller Lever - Rubber	

② Indicator Lamp

No mark : Standard (No Indicator)	D : LED Lamp (12 ~ 24VDC / AC)	A : Neon Lamp (100 ~ 240VAC)
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General Specification

Contact Form	1N/O + 1N/C	
Contact Material	Ag alloy / 24K gold plated	
Rated Current	12A 250VAC -resistance load	
Insulation Resistance	Min. 100MΩ 500VDC Insulation resistance	
Contact Resistance	Max. 15mΩ	
Dielectric Strength	2,200VAC-50/60Hz 1 Minute	
Life Cycle	Mechanical	Min. 10,000,000
	Electrical	Min. 1,000,000
On/Off Frequency	Mechanical	120 / Min.
	Electrical	30 / 1Min.
Operation Speed	1mm ~ 1m/sec	
Vibration Resistance	10 ~ 55Hz Dual wave length 1.5mm	
Shock Resistance	Malfunction	1,000m/s ² Max. approx. 100G
	Destruction	300m/s ² Max. approx. 30G
Degree Of Protection	IP67	
Ambient Temperature	-10 ~ +80°C (with no icing)	
Ambient Humidity	Max. 95%RH	
Housing Material	Aluminum die-casting	
Weight	Approx. 270g	



Performance And Specification

Rated Voltage	Non-Inductive		Inductive	
	Resistance Load	Lamp Load	Motor Load	Inductive Load
125VAC	16A	5A	8A	16A
250VAC	12A	3A	5A	12A
500VAC	10A	2.5A	2.5A	10A
30VDC	8A	6A	6A	8A
125VDC	1A	0.3A	0.3A	1A
250VDC	0.5A	0.2A	0.2A	0.5A

Contact Block

KXL-101

24K gold plated Contact



Indication Lamp Name Plate

KXL-102

12 ~ 24VAC/DC LED Lamp

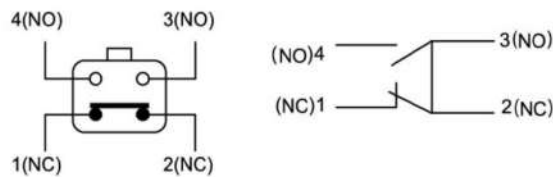


KXL-103

100 ~ 240VAC NEON Lamp







Internal Circuit Drawing



Limit Switch

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Product Selection

	Indicator Lamp	Part Number	Head Type	OF	RF	PT	OT	MD	TT	OP	TTP
	Standard	KXL - 301	Push Plunger	2,720gf (2667N)	910gf (8.92N)	1.7mm	6.4mm	1mm	-	34 ±0.8 mm	29.5 mm
	LED Lamp	KXL - 301D									
	Neon Lamp	KXL - 301A									
	Standard	KXL - 302	Roller Plunger	2,720gf (2667N)	910gf (8.92N)	1.7mm	5.6mm	1mm	-	44 ±0.8 mm	39.5 mm
	LED Lamp	KXL - 302D									
	Neon Lamp	KXL - 302A									
	Standard	KXL - 303	Ball Plunger	2,720gf (2667N)	910gf (8.92N)	1.7mm	4mm	1mm	-	44.5 ±0.8 mm	41 mm
	LED Lamp	KXL - 303D									
	Neon Lamp	KXL - 303A									
	Standard	KXL - 702	Roller Lever	1,360gf (13.34N)	227gf (2.23N)	15±5° mm	80°	12°	100°	-	-
	LED Lamp	KXL - 702D									
	Neon Lamp	KXL - 702A									
	Standard	KXL - 703	Adjustable Roller Lever Lever - SUS	1,360gf (13.34N)	227gf (2.23N)	20±5°	65°	10°	95°	-	-
	LED Lamp	KXL - 703D									
	Neon Lamp	KXL - 703A									




Product Selection

	Indicator Lamp	Part Number	Head Type	OF	RF	PT	OT	MD	TT	OP	TTP
	Standard	KXL - 713	Adjustable Roller Short Lever Lever - SUS	1,360gf (13.34N)	227gf (2.23N)	20±5 °	65 °	10 °	95°	-	-
	LED Lamp	KXL - 713D									
	Neon Lamp	KXL - 713A									
	Standard	KXL - 704	Adjustable Rod Lever Lever - SUS	142gf (1.34N)	28gf (0.27N)	20±5 °	65 °	10 °	95°	-	-
	LED Lamp	KXL - 704D									
	Neon Lamp	KXL - 704A									
	Standard	KXL - 705	Ø50 Roller Roller - Aluminum	1,360gf (13.3N)	227gf (2.2N)	20±5 °	65 °	10 °	95°	-	-
	LED Lamp	KXL - 705D									
	Neon Lamp	KXL - 705A									
	Standard	KXL - 725	Ø50 Roller Roller - Rubber	1,360gf (13.3N)	227gf (2.2N)	20±5 °	65 °	10 °	95°	-	-
	LED Lamp	KXL - 725D									
	Neon Lamp	KXL - 725A									
	Standard	KXL - 706	Ø50 Adjustable Roller Roller - Aluminum Lever - SUS	1,360gf (13.3N)	227gf (2.2N)	20±5 °	65 °	10 °	95°	-	-
	LED Lamp	KXL - 706D									
	Neon Lamp	KXL - 706A									
	Standard	KXL - 726	Ø50 Adjustable Roller Roller - Rubber Lever - SUS	1,360gf (13.3N)	227gf (2.2N)	20±5 °	65 °	10 °	100°	-	-
	LED Lamp	KXL - 726D									
	Neon Lamp	KXL - 726A									

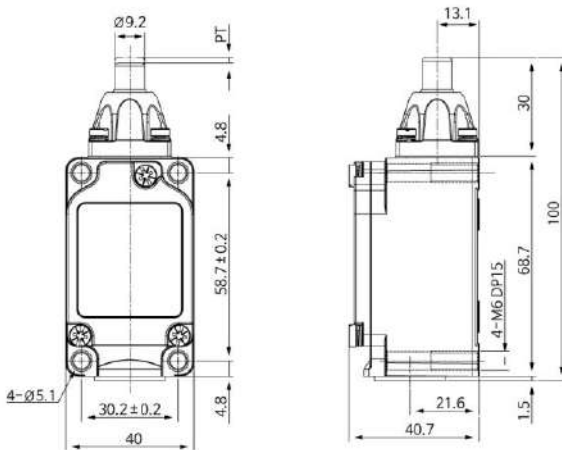
Limit Switch

KXL Series

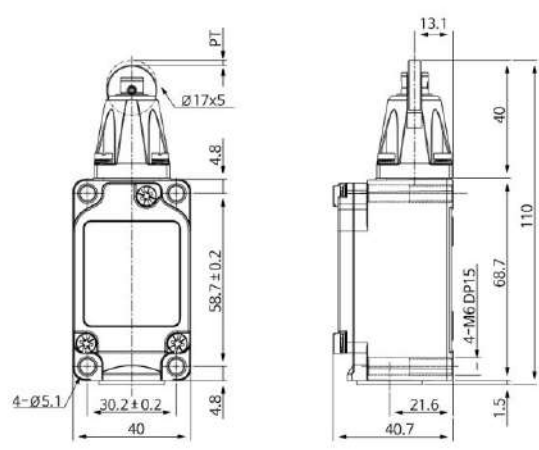
Product Selection

	Indicator Lamp	Part Number	Head Type	OF	RF	PT	OT	Head Type
	Standard	KXL - 717	York Roller Lever	1,200gf (11.8N)	-	50±5 °	35°	
	LED Lamp	KXL - 717D						
	Neon Lamp	KXL - 717A						
	Standard	KXL - 727	York Roller Lever	1,200gf (11.8N)	-	50±5 °	35°	
	LED Lamp	KXL - 727D						
	Neon Lamp	KXL - 727A						
	Standard	KXL - 737	York Roller Lever	1,200gf (11.8N)	-	50±5 °	35°	
	LED Lamp	KXL - 737D						
	Neon Lamp	KXL - 737A						
	Standard	KXL - 747	York Roller Lever	1,200gf (11.8N)	-	50±5 °	35°	
	LED Lamp	KXL - 747D						
	Neon Lamp	KXL - 747A						
	Standard	KXL - 901	Spring Rod	150gf (1.47N)	-	20±10	-	-
	LED Lamp	KXL - 901D	Lever - SUS					
	Neon Lamp	KXL - 901A						
	Standard	KXL - 902	Spring Wire	150gf (1.47N)	-	20±10	-	-
	LED Lamp	KXL - 902D	Lever - SUS					
	Neon Lamp	KXL - 902A						

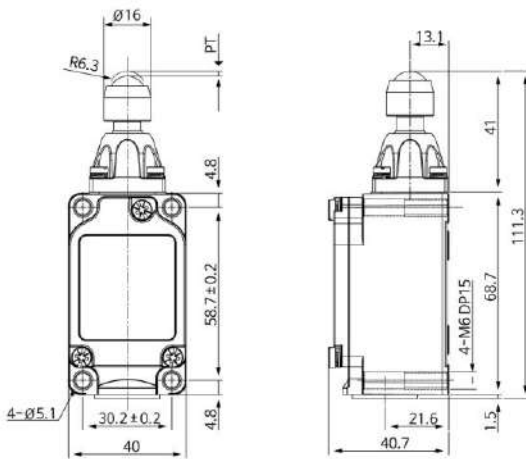
Push Plunger
KXL - 301



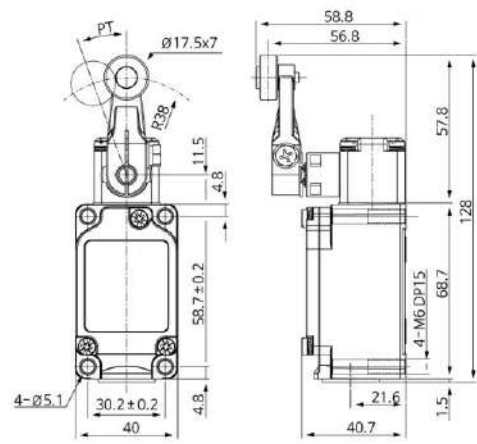
Roller Plunger
KXL - 302



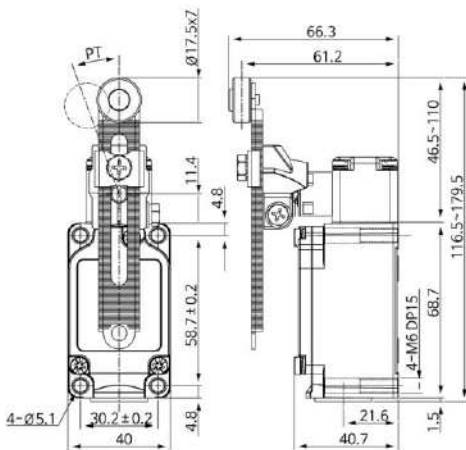
Ball Plunger
KXL - 303



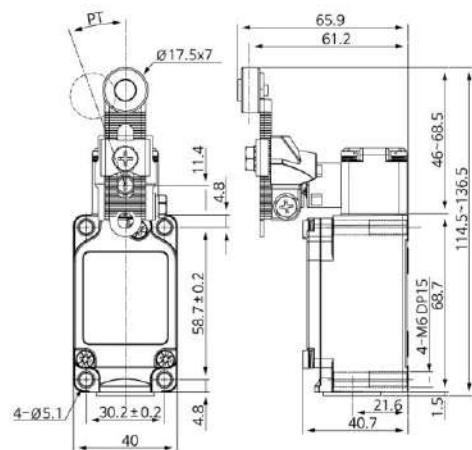
Roller Lever
KXL - 702



Adjustable Roller Lever
KXL - 703



Adjustable Roller Lever
KXL - 713



Limit Switch

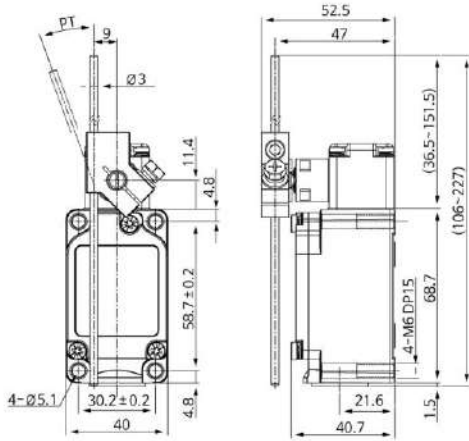
KXL Series

Dimension

unit : mm

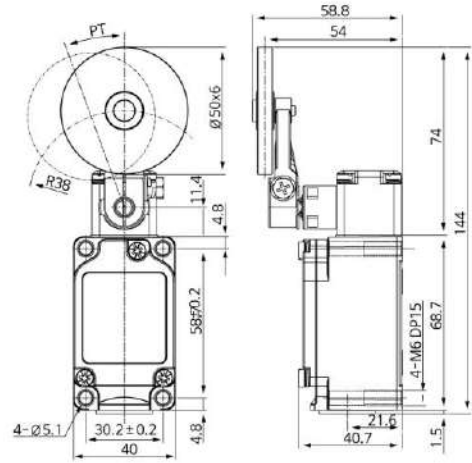
Adjustable Rod Lever

KXL - 704



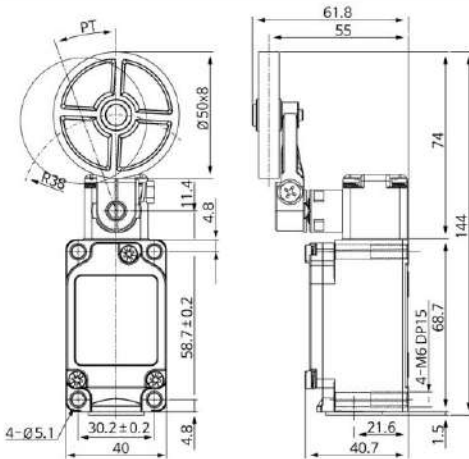
Ø50Roller Lever - Aluminum

KXL - 705



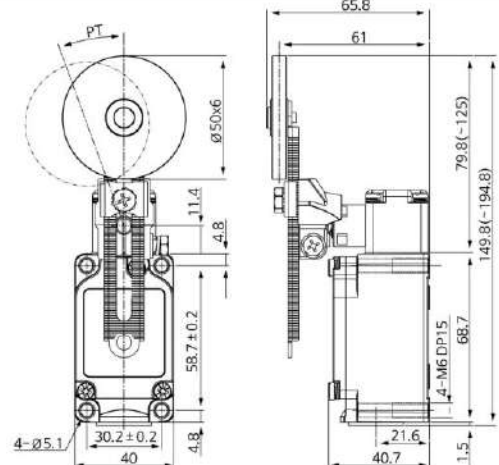
Ø50Roller Lever - Rubber

KXL - 725



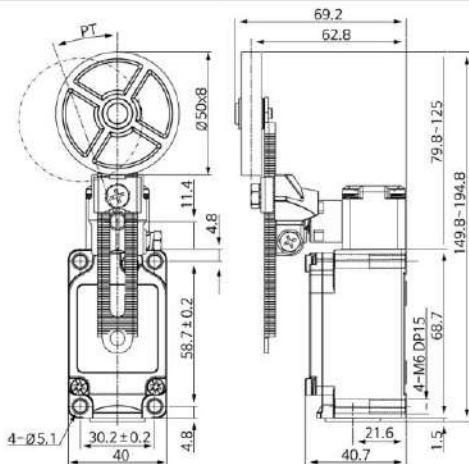
Ø50Adjustable Roller Lever - Rubber

KXL - 706



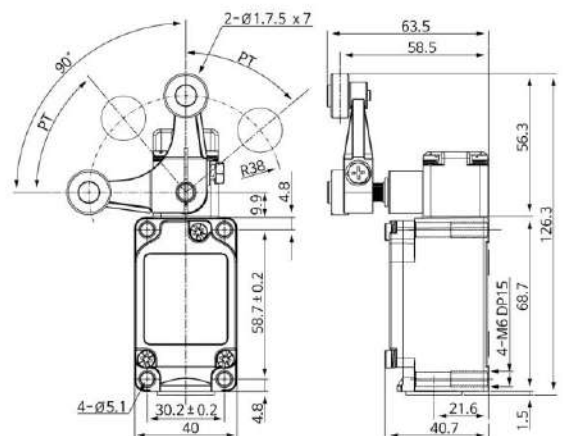
Ø50Adjustable Roller Lever - Rubber

KXL - 726

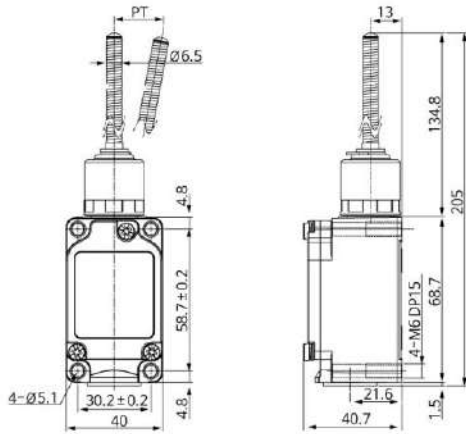


York Roller Lever

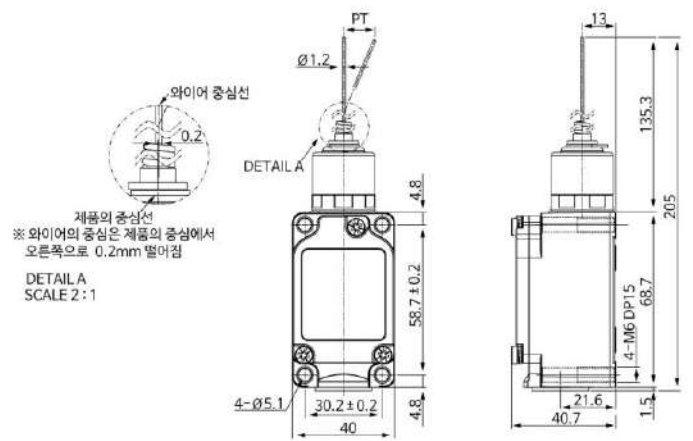
KXL - 717, 727, 737, 747



Spring Wire
KXL - 901



KXL - 902



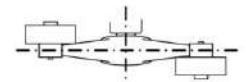
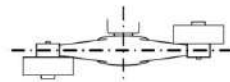
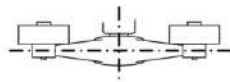
The York Roller Lever

KXL-717

KXL-727

KXL-737

KXL-747

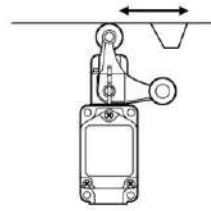
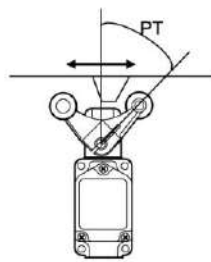
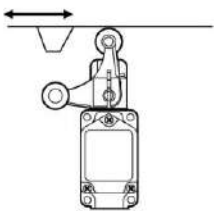


The Operation Of The Built - In Switch In A Accordance With The Movement Of The York

NC current application

NO current application


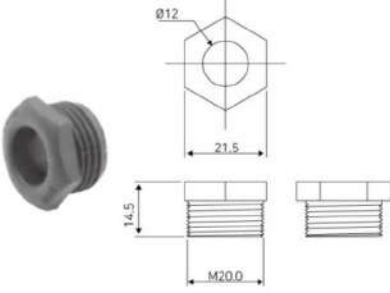
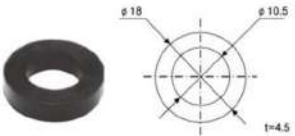


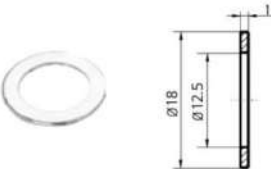
NO current application



Limit Switch

KXL Series

Basic Accessories

PG 13.5A	PG(Black)	Rubber Packing
		
Front mounting bolt	Rear mounting bolt	Washer
 <p>[M5X40mm X 4ea]</p>	 <p>[M6X14mm X 4ea]</p>	

Rubber Packing

Indicator Lamp	Item	Rated Voltage	Rated Current	Order code
Neon lamp		100 ~ 240VAC	0.6 ~ 2mA	AC Load : KXL - □ A
LED lamp		12 ~ 24VAC/DC	Approx. 1mA	DC Load : KXL - □ D

- There are two types of lamps: Neon and LED lamps.
- The circuit check and fault detection are easy because the switch operation status is easily checked outside.
- The user can change the mode of operation status indication by changing the lamp holder mounting direction by 180° (up or down) inside the indicator lamp cover.
- Additional wiring is not required for the lamp terminals because the spring attached to the indicator lamp cover comes in contact with the terminal screw of the built-in switch.

Operation Indicator Lamp Direction Shift

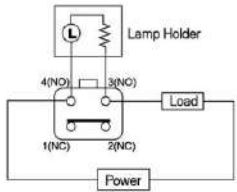


- The LED type does not require the change of polarity because it has a built-in rectifier.
- The indicator lamp cover is formed by coating transparent resin on the Al die casting material, and can be used in the place with cutting oil. In addition, the operation status (ON in operation or non-operation) can be checked outside.
- This is ideal for the places where checking the passage of products is difficult on the conveyor line.

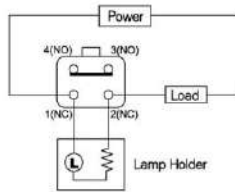
- The factory setting is "ON in operation".
- For the use with ON in non-operation, shift the LED downward as in the figure.

Indication Lamp Wiring And Circuit Diagram

Internal Wiring Diagram

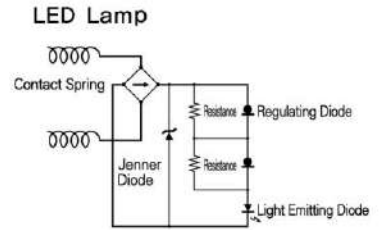
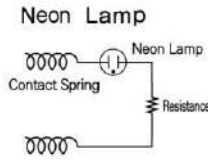


Lights on when in non-operation
[Lamp ON when NC ON]

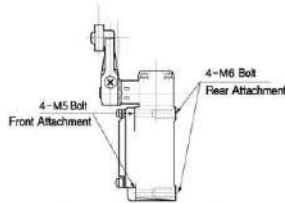
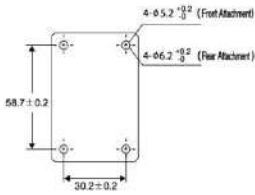


Lights on when in operation
[Lamp ON when NO ON]

Internal Circuit Drawing

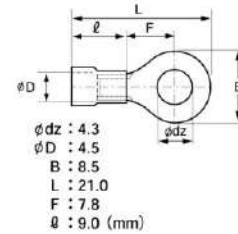


Mounting

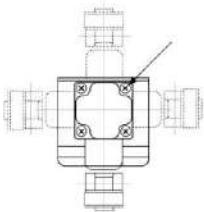


Fastening bolt is shipped together with the product.

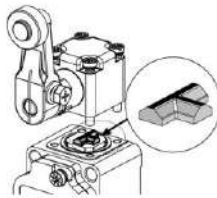
Pressurized Terminal In Use



How To Change The Attached Direction Of The Head Part

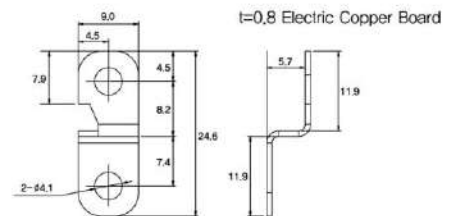


The head position can be changed in four directions by loosening four bolts.



The arrowed internal parts must rotate in the same direction as the head part rotation.

Short Bar, Available On Separate Orders



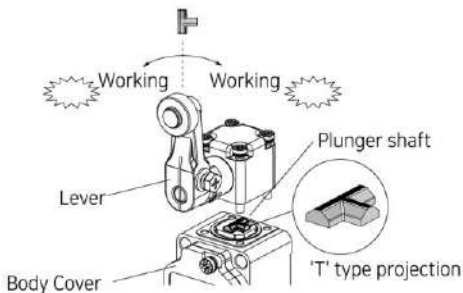
If the shorting terminal is used as in the figure, the switch can be the single pole double throw type.

Selection of contact behavior by adjusting the direction of engagement of the internal plunger shaft

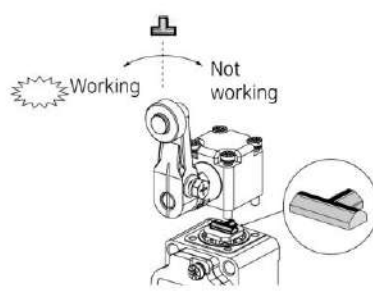
※ Applicable models: KXL-702, KXL-703, KXL-713, KXL-704, KXL-705, KXL-725, KXL-706, KXL-726

Pull out the plunger shaft according to the direction of the desired contact lever rotation, change the direction of the 'T' projection on the upper part of the plunger, and combine it.

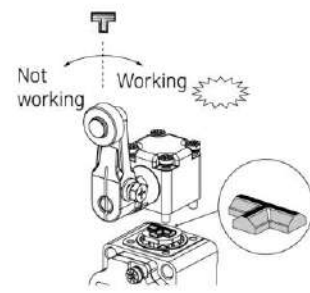
Note) This example is for when the lever is on the same side as the main cover. When the lever is on the other side, align the plunger engagement direction with the lever.



All function behavior
(Factory default setting)



Contact operation only when the lever is turned to the left



Contact operation only when the lever is rotated to the right

Limit Switch

KXM Series

Part Number Description

KXM - **1** **2**

1 Head Type

301 : Push Plunger	726 : Ø50 Adjustable Roller Lever - Rubber
302 : Roller Plunger	901 : Spring Rod
312 : Cross Roller Plunger	902 : Spring Wire
702 : Roller Lever	903 : Spring Rod - Plastic Tip
703 : Adjustable Roller Lever	923 : Spring Rod - Metal Tip
704 : Adjustable Rod Lever	

2 Indicator Lamp

No mark : Standard (No Indicator)	D : LED Lamp (12 ~ 24VDC/AC)	A : Neon Lamp (100 ~ 240VAC)
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General Specification

Contact Form	1N/O + 1N/C	
Contact Material	Ag alloy/24K Au Plate	
Rated Current	6A 250VAC - Resistance load	
Insulation Resistance	Min. 100MΩ 500VDC Insulation resistance	
Contact Resistance	Max. 25mΩ	
Dielectric Strength	1,500VAC - 50/60Hz 1 Minute	
Internal Voltage	Between the terminals	1,000VAC - 50/60Hz 1 Min.
	Between each terminal and non-charging parts	1,500VAC - 50/60Hz 1 Min.
Life Cycle	Mechanical	Min. 1,000,000
	Electrical	Min. 300,000
Vibration Resistance	10 ~ 55Hz dual wave length 1.5mm	
Shock Resistance	Malfunction	98m/s ² - Max. 10G
	Destruction	294m/s ² - Max. 30G
Degree Of Protection	IP66	
Ambient Temperature	-20 ~ +60°C (with no icing)	
Ambient Humidity	Max. 90%RH	
Weight	Approx. 130 ~ 190g	

※ Be sure to use a band clip when using the IP66.

Rated Voltage	Non-Inductive				Inductive			
	Resistive Load		Lamp Load		Motor Load		Inductive Load	
	NC(A)	NO(A)	NC(A)	NO(A)	NC(A)	NO(A)	NC(A)	NO(A)
125VAC	6		1.5	0.7	2	1		3
250VAC	6		1	0.5	1.5	0.8		3
500VAC	2		0.75	0.35	0.75	0.4		0.75
30VDC		5		3		3		4
125VDC	0.4							
250VDC		0.2						

Contact Block









Indication Lamp Name Plate





Product Selection

	Indicator Lamp	Part Number	Head Type	OF	RF	PT	MD	OT	TT
	Standard	KXM - 301	Push Plunger	900gf (8.83N)	150gf (1.47N)	1.5mm	1.2mm	4mm	5.5mm
	LED Lamp	KXM - 301D							
	Neon Lamp	KXM - 301A							
	Standard	KXM - 302	Roller Plunger	900gf (8.83N)	150gf (1.47N)	1.5mm	1.2mm	4mm	5.5mm
	LED Lamp	KXM - 302D							
	Neon Lamp	KXM - 302A							
	Standard	KXM - 312	Cross Roller Plunger	900gf (8.83N)	150gf (1.47N)	1.5mm	1.2mm	4mm	5.5mm
	LED Lamp	KXM - 312D							
	Neon Lamp	KXM - 312A							
	Standard	KXM - 702	Roller Lever	600gf (5.88N)	150gf (0.49N)	20°	10°	75°	95°
	LED Lamp	KXM - 702D							
	Neon Lamp	KXM - 702A							
	Standard	KXM - 703	Adjustable Roller Lever	800gf (7.84N) ~ 342gf (3.35N)	50gf (0.49N) ~ 21gf (0.21N)	20°	10°	75°	95°
	LED Lamp	KXM - 703D							
	Neon Lamp	KXM - 703A							
	Standard	KXM - 704	Adjustable Rod Lever	800gf (7.84N) ~ 230gf (1.99N)	50gf (0.49N) ~ 12gf (0.12N)	20°	10°	75°	95°
	LED Lamp	KXM - 704D							
	Neon Lamp	KXM - 704A							

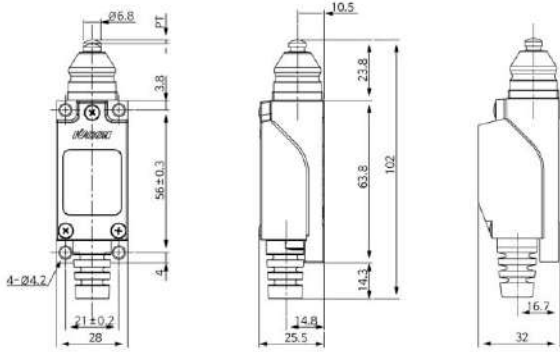
Limit Switch

KXM Series

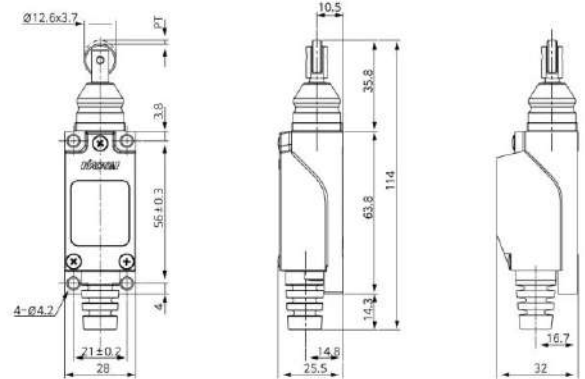
Product Selection

	Indicator Lamp	Part Number	Head Type	OF	RF	PT	MD	OT	TT
	Standard	KXM-726	Ø50 Adjustable Roller Lever Type	800gf (7.84N) ~ 342gf (3.35N)	50gf (0.49N) ~ 21gf (0.21N)	20°	10°	75°	95°
	LED Lamp	KXM-726D							
	Neon Lamp	KXM-726A							
	Standard	KXM-901	Spring Rod	90gf (0.88N)		30°	20°	50°	
	LED Lamp	KXM-901D							
	Neon Lamp	KXM-901A							
	Standard	KXM-902	Spring Wire	90gf (0.88N)		30°	20°	50°	
	LED Lamp	KXM-902D							
	Neon Lamp	KXM-902A							
	Standard	KXM-903	Spring Rod-Plastic Tip	90gf (0.88N)		30°	20°	50°	
	LED Lamp	KXM-903D							
	Neon Lamp	KXM-903A							
	Standard	KXM-923	Spring Rod-Metal Tip	90gf (0.88N)		30°	20°	50°	
	LED Lamp	KXM-923D							
	Neon Lamp	KXM-923A							

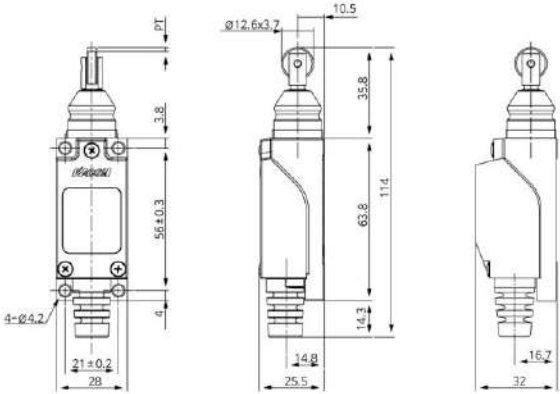
Push Plunger
KXM-301
 Standard Type with Neon / LED Type



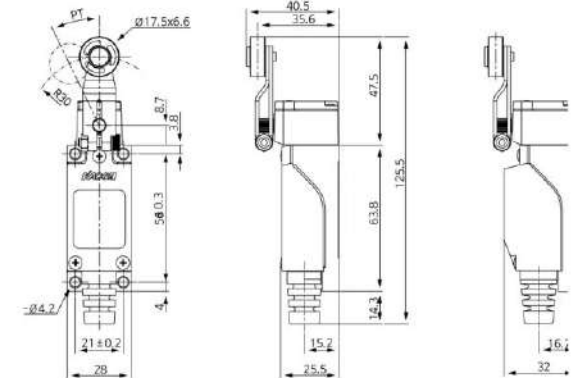
Roller Plunger
KXM-302
 Standard Type with Neon / LED Type



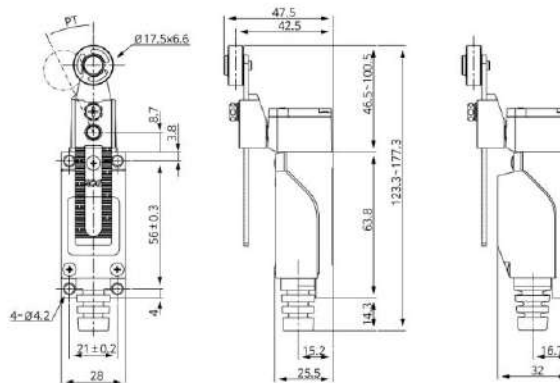
Cross Roller Plunger
KXM-312
 Standard Type with Neon / LED Type



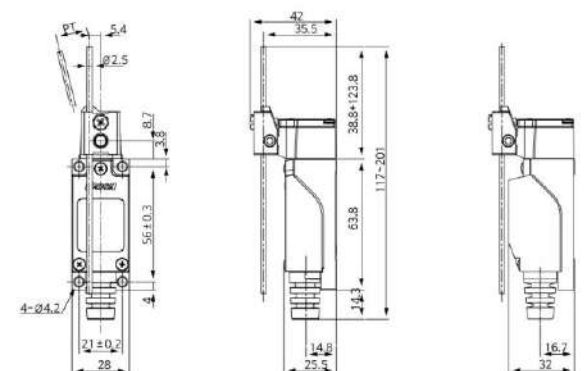
Roller Lever
KXM-702
 Standard Type with Neon / LED Type



Adjustable Roller Lever
KXM-703
 Standard Type with Neon / LED Type



Adjustable Rod Lever
KXM-704
 Standard Type with Neon / LED Type



Limit Switch

KXM Series

Dimension

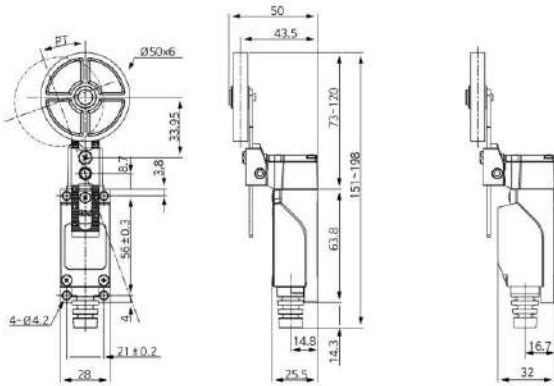
unit : mm

Ø50 Adjustable Roller Lever Type

KXM-726

Standard Type

with Neon / LED Type

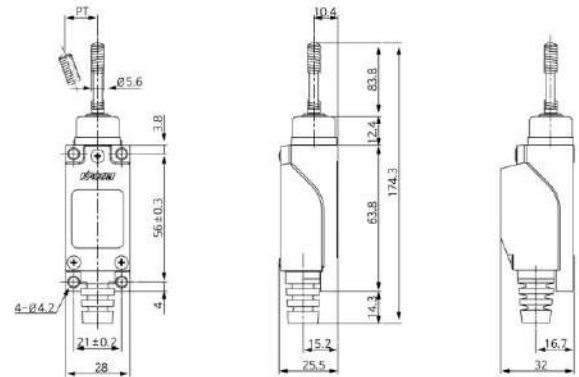


Spring Rod

KXM-901

Standard Type

with Neon / LED Type

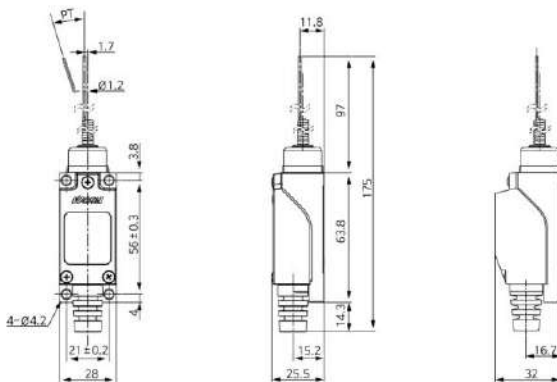


Spring Wire

KXM-902

Standard Type

with Neon / LED Type

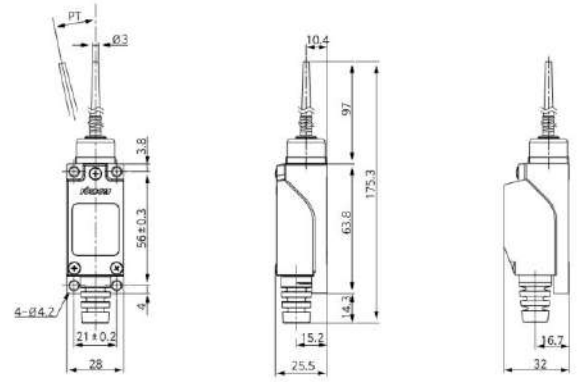


Spring Rod-Plastic Tip

KXM-903

Standard Type

with Neon / LED Type

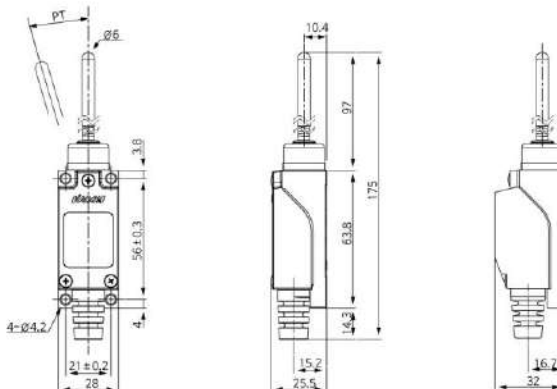


Spring Rod-Metal Tip

KXM-923

Standard Type

with Neon / LED Type



Operation indicator lamp Ratings

Indicator Lamp	Rated voltage	Rated current	Order code
NEON lamp	80 ~ 240VAC	0.2 ~ 1.5mA	AC load: KXM - □A
LED lamp	12 ~ 24VDC	0.5 ~ 1.5mA	DC load: KXM - □D

- There are two types of lamps: Neon and LED lamps.
- The circuit check and fault detection are easy because the switch operation status is easily checked outside.
- This is ideal for the places where checking the passage of products is difficult on the conveyor line.
- The LED type has the + or - polarity. Pay attention to the polarity, which is indicated inside.
- The lens section of the indicator lamp cover ensures sufficient brightness with its diffusible resin diamond cut structure.
- The waterproof performance is excellent because the indicator lamp and cover are formed together.



Operation indicator lamp direction shift

- The lamp terminal does not require additional wiring, because it is connected via the spring in the indicator cover and the built-in switch terminal bolts.
- The indicator lamp can be selected between the modes of "ON in operation" and "ON in nonoperation".
- The indicator lamp can be shifted by removing the lamp holder inside the cover using tools including drivers.



Lamp holder removal

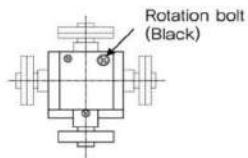
ON in operation

ON in non-operation

- The user can change the mode of operation status indication by changing the lamp holder mounting direction by 180° (up or down) inside the indicator lamp cover.
- The factory setting is "ON in operation"

Head mounting

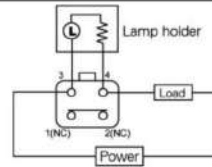
In the lever type, the head can be placed in one of four directions at 90° rotation interval.



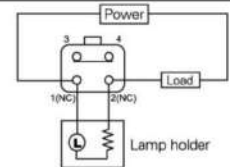
To change the head direction, loosen the black bolt on the top of the head, rotate the head, and tighten the bolt again.

Operation indicator lamp wiring and circuit diagram

Internal wiring



ON in non-operation
[Lamp ON when NC ON]

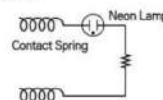


ON in operation
[Lamp ON when NO ON]

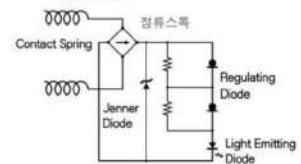
Caution: Use the same power supply for terminals / Connect the same polarity for terminals 1 and 4, and 2 and 3.

Diagram

NEON Lamp

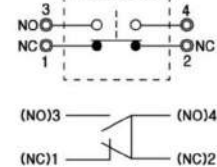
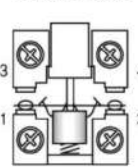


LED Lamp



Built-in switch circuit diagram

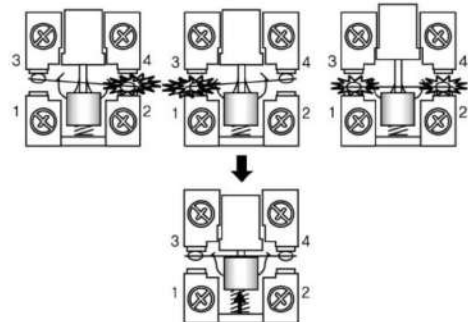
24K Au Plate



Direct contact opening ⇔ Direct Opening

1. The device is safe with the mechanism that cuts off the circuit when the switch contact weld occurs.
2. If the contact weld appears, the plunger directly pushes up the movable terminal to forcefully separate the NC contact and cut off the circuit.
3. The direct opening function is for the Nc contact only.
4. The plunger continues to push the movable terminal during operation, and the circuit is not cut off by mechanical impact.

Welding



Contact weld After direct opening

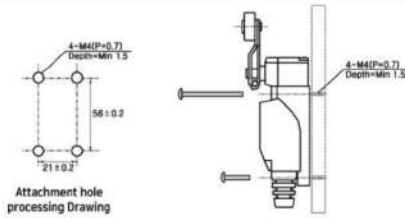
Limit Switch

KXM Series

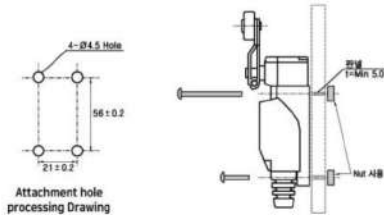
Mounting on the panel

1. This product can be mounted on the front or rear.
2. Before the installation of the product, determine its position so that the OT of the actuator is proper.
⇒ An excessive OT leads to a decrease in the product life due to the strong wear and fatigue
3. After determining the mounting position, refer to the following types to process the panel.
4. Be sure to use spring washers for the mounting bolts so that the product will not be removed by vibration or impact.

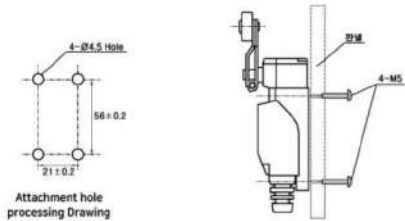
Type 1. Front Attached - Direct Tap Processing on the panel



Type 2. Front Attachment - Direct hole processing on the panel



Type 3. Rear Attachment - Using M5 Tap of the product



⇒ The bolts and nuts above are shipped together with the product.

Wires

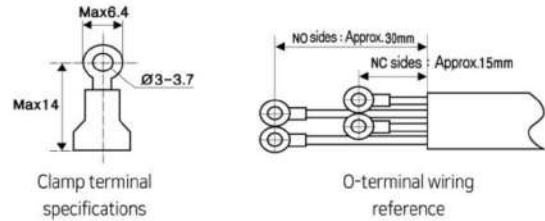
1. The proper size of wires that pass through the wiring lead-out (NBR) is $\varnothing 6.6 \sim \varnothing 8.5$.
2. The use of VCTF cable is desirable.
3. The following table shows the specifications of the VCTF cable. Refer to the table for cable selection.

Small Line Number	Conductor (L)	Completed outer diameter (I)
2 wire	0.75mm ²	$\varnothing 6.6$ mm
	1.25mm ²	$\varnothing 7.4$ mm
	2.0mm ²	$\varnothing 8.0$ mm
3 wire	0.75mm ²	$\varnothing 7.0$ mm
	1.25mm ²	$\varnothing 7.8$ mm
	2.0mm ²	$\varnothing 8.5$ mm
4 wire	0.75mm ²	$\varnothing 7.6$ mm
	1.25mm ²	$\varnothing 8.5$ mm



VCTF : The cable for 300 V or less indoor small appliances, which is manufactured by insulating stranded copper wires with PVC.

4. When wiring the switch terminals, do not directly connect the lead wire to the terminal, but use the O-type clamp terminal with insulation shielding.
5. After wiring, be sure to mount the cover before applying the power. Otherwise, it may lead to an electric shock.



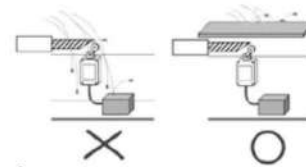
Tightening torque

When mounting the product, excessive force for bolts or nuts may damage the product. Observe the following tightening torques.

Front Attachment	M4- Max. 12kgf.cm / 1.2N.m
Rear Attachment	M5- Max. 19.6kgf.cm / 2.0N.m
Switch Terminal	M3- Max. 4.9kgf.cm / 0.5N.m

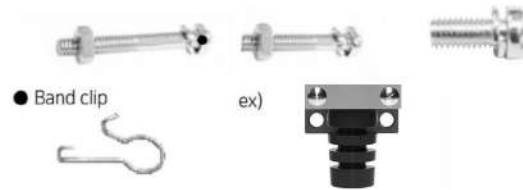
Environment

- Do not use the product under water or oil, nor in the environment where it is influenced by oil or water because this product is not completely oiltight.
- Do not use the product in the places where there are risks of fire and corrosion.
- Actual conditions may affect the product reliability including the guaranteed life and tightness.



Basic Accessories

- Front attachment-M4x35 2EA, M4x20 2EA ● Rear Attachment-M5x10 4EA



Tighten the bottom wire outlet using a band clip.