Plastic Safety Interlock Switches

LJS-PA Series | Plastic safety interlock Switches.

- **UL/CSA/CE markings**
- **⊖Forced contact-opening mechanism**
  (N.C. contact only)
- **Compact size**
- **Superior IP67 seal**
- **Double-insulation structure with plastic housing**
  (no grounding line connection required)
- **Wide operating temperature range**
  (–25 to +70˚C)

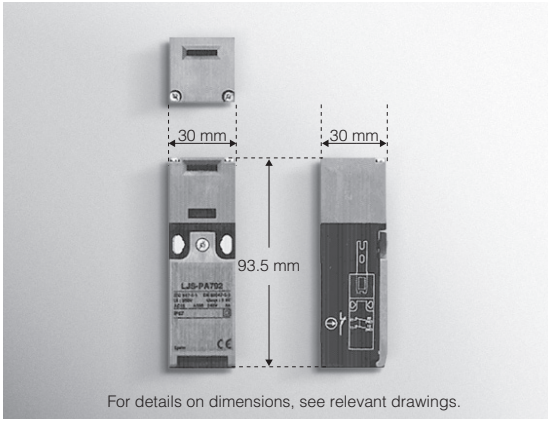
ORDER GUIDE

● Body

Contact type	Catalog listing
N.C. x 1 + N.O. x 1	**LJS-PA502**
N.C. x 2	**LJS-PA792**

● Tongued key

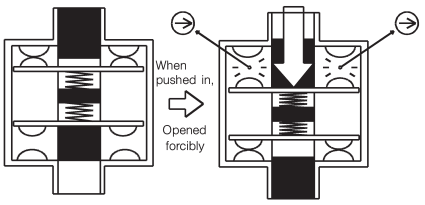
Shape	Catalog listing
Straight type 	**LJS-Z11**
Right angle type 	**LJS-Z12**
Adjustable type 	**LJS-Z13**



For details on dimensions, see relevant drawings.

INTERNAL SWITCH

The internal switch of the **LJS-PA** Series has the N.C./N.O. electrically independent contact (Zb) structure.
Additionally, the contact forced open structure is used to forcibly open the contact (N.C. contact only) even if the contact is fused accidentally.
As the switch is pushed in, the contact is opened forcibly.



PERFORMANCE

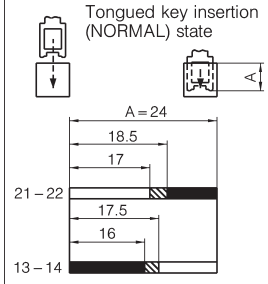
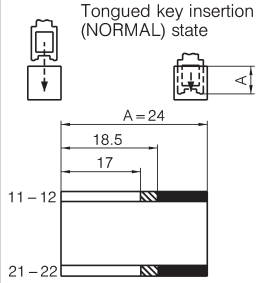
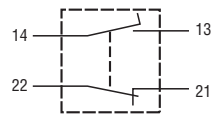
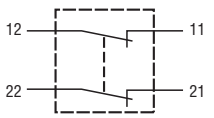
Standards	**Conformed standards**	Product related: IEC 60947-5-1㊀, EN 60947-5-1㊀ Machine related: IEC 60204-1, EN 60204-1, EN 1088
	Approved standards	UL / CSA
Structure	**Protective structure**	IP67 (JIS C 0920) (IEC 60529)
	Electrical shock protection	Class II (IEC 60536)
	Internal switch	Slow action
Electrical performance	**Electrical rating**	See separate Table 1.
	Rated energizing current (Ith)	10A
	Short-circuit protective device	Breaking fuse 10A type gG (gl)
	Rated insulation voltage (Ui)	500V IEC 60947-1, 300V UL / CSA
	Conditional rated short-circuit current	1,000A
	Rated impulse withstanding voltage (Uimp)	6,000V
Mechanical performance	**Impact resistance**	100 m/s^2 (11 ms) IEC 60068-2-27
	Vibration resistance	50 m/s^2 (10 to 500 Hz) IEC 60068-2-6
	Tongued key operating speed	0.01 m/s to 0.5 m/s
	Mechanical operation frequency	10 operations/min
Life	**Mechanical life**	1,000,000 operations or more
	Electrical life	400,000 operations or more
Environmental conditions	**Operating temperature range**	−25 to +70˚C (No freezing allowed.)
	Operating humidity range	85%RH or less
Recommended tightening torque	**Body**	0.49 to 0.69 N-m (M4 screw)
	Terminal	0.8 N-m (M3.5 binding machine screw)
	Cover	0.5 N-m (M3 round head screw)
	Head	0.5 N-m (M3 round head screw)

● Table 1. Electrical rating

AC-15: A300
(Ue=240V, Ie=3A or Ue=120V, Ie=6A)
DC-13: Q300
(Ue=250V, Ie=0.27A or Ue=125V, Ie=6A)

Category used AC-15: Solenoid load
DC-13: Solenoid load
Ue: Rated operating voltage
Ie: Rated operating current

CONTACT OPERATION

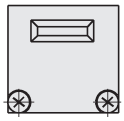
Catalog listing	LJS-PA592	LJS-PA792
■ : Contact close □ : Contact open ▨ : Transient state		
Circuit diagram		

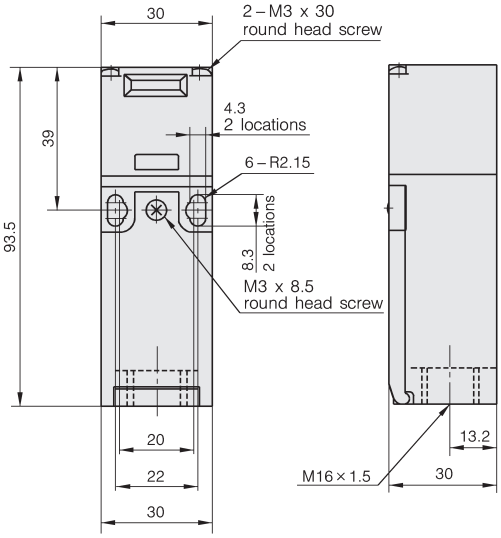
OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

(unit: mm)

● Body

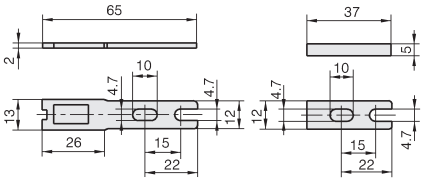
Tongued key removal strength	10 N
Forced opening force (Min.)	15 N



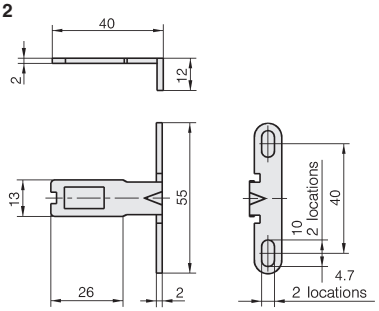


● Tongued key

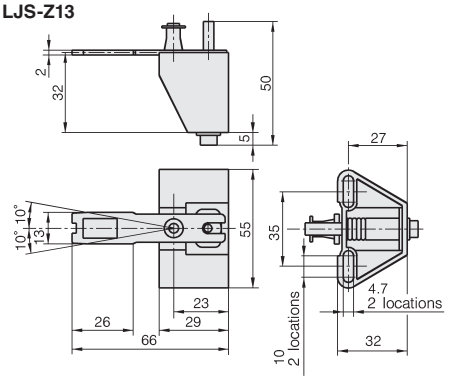
LJS-Z11



LJS-Z12

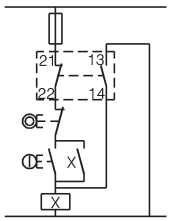


LJS-Z13

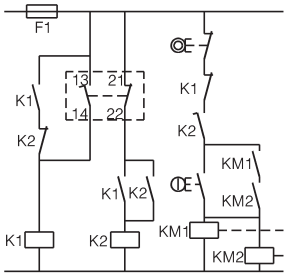


CIRCUIT EXAMPLES

Example of circuit in category 1 of EN 954-1
N.C. + N.O.



Example of circuit in category 3 of EN 954-1
N.C. + N.O.



The reset is activated when the tongued key is removed, and then it is inserted.

Note: For mechanical/electrical redundancy, add another switch with the contact forced open mechanism.

Diagram of tongued key position

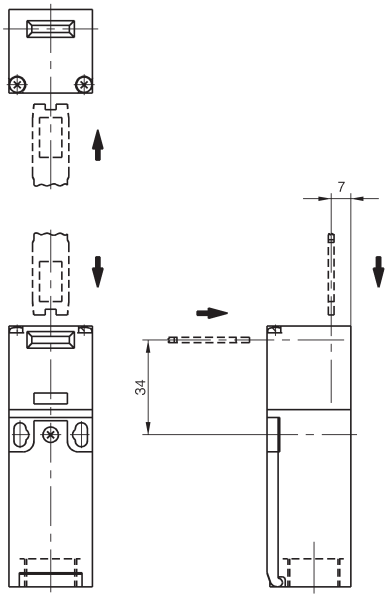
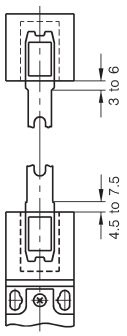
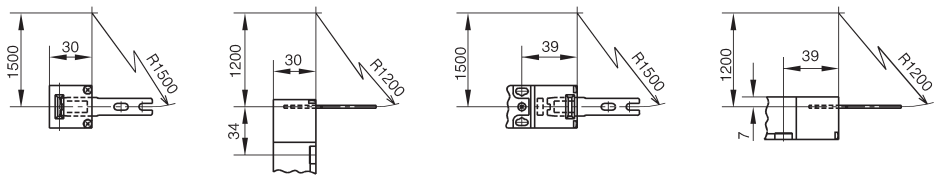


Diagram of tongued key insertion position (unit: mm)

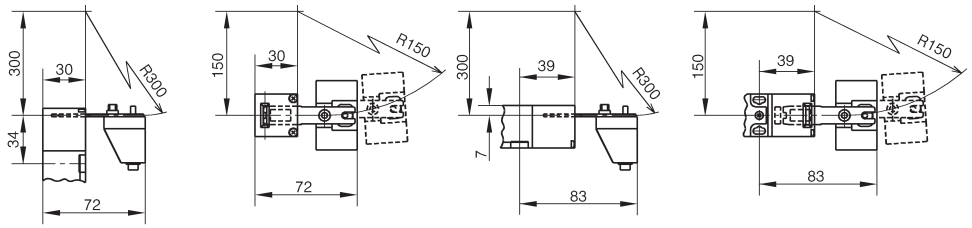


Actuation radius of tongued key

LJS-Z11/12



LJS-Z13



HANDLING PRECAUTIONS

1. Mounting the switch

- Always tighten each part of the safety switch with the recommended tightening torque stated in the product specification. If any part is tightened excessively, this might cause damage to the screw and/or other parts. Additionally, insufficient tightening may lead to lowering of various characteristics, such as switch sealing ability.
- Regardless of the door type, do not use the safety switch for the door stopper.
  A mechanical door stopper is installed at the end of the door so that any excessive force is not applied to the safety switch.
- Do not apply any excessive impact to the safety switch by opening or closing the door carelessly. If any excessive impact is applied to the switch, this might cause the switch to malfunction.
- When the safety switch is operated in a place where a large amount of foreign matter or dust exists, appropriate measures, such as protective cover are taken to prevent foreign matter or dust from entering the safety switch through the tongued key insertion port. If a large amount of foreign matter or dust enters the safety switch, this may affect the mechanical part, resulting in malfunction.
- Do not use leads with silicone rubber insulation, or silicone filler, or grease or oil containing silicone. They can cause contacts to fail to conduct electricity.

2. Tongued key

- Do not use any tongued key other than that specified.
  Operation with a tongued key other than that specified might cause the switch to break.
- Mount the tongued key in a place where it is not in contact with the operator's body when opening or closing the door. Failure to do so might cause personal injury.