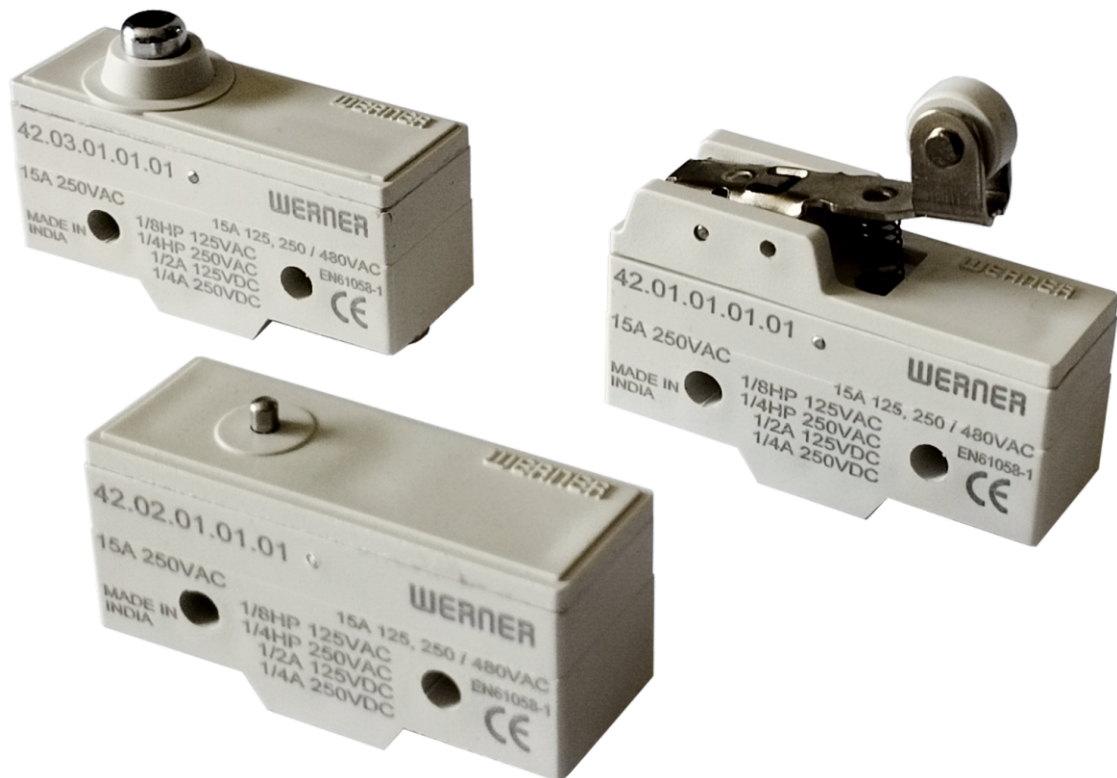


PRODUCT SPECIFICATIONS

42 Series Micro Switches



42 Series Micro Switch

WERNER

General Purpose

Features:

- A large switching capacity of 15 A with high repeat accuracy.
- Contact gap type Basic models.
- A number of standard models are available for micro loads.
- A range of molded terminal type models with safety Terminal protective cover is available.

Basic Type:

General Purpose

- A variety of actuators are available for a wide range of applications.
- The contact mechanism of models for microloads is a crossbar gold alloy contact type ensuring highly reliable operations For micro loads.
- Contact Gap: 1.8 mm (high capacity)

Approvals

Approvals and Declaration of Conformity

CE

CE



Features

Element	classification	42.15A (Excluding Micro Load and Flexible Rod)	42.15A (Flexible Rod)
Working speed		0.01 mm to 1 m/s	1 mm to 1 m/s
Business Frequency	Mechanical	240 operations/min	120 operations/min
	electrical	20 operations/min	
Insulation resistance		100 MΩ min. (at 500 VDC)	
contact resistance		15 mΩ max. (initial value)	
dielectric strength		Between contacts of same polarity :- Contact gap 1.8mm 1,500VAC, 50/60 Hz for 1min Between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts 2,000VAC, 50/60 Hz for 1min	
Vibration Resistance	Fault	10 to 55 Hz, 1.5-mm double amplitude	10 to 20 Hz, 1.5-mm double amplitude
Shock Resistance	Demolition	1,000 m/s ² max.	
	Fault	300 m/s ² max.	50 m/s ² max.
Durability	Mechanical	Contact gap 1.8mm 300,000 operations min.	Contact gap 1.8mm 1,000,000 operations min.
	electrical	Contact gap 1.8mm 100,000 operations min.	Contact gap 1.8mm 100,000 operations min.
Degree of Protection		IP00	
Degree of Protection Against Electric Shock		Class I	
Proof Tracking Index (PTI)		175	
Ambient Operating Temperature	General Purpose	-25°C to 80°C (with no icing)	
Ambient Operating Humidity	General Purpose	35% to 85%RH	
Weight			
Minimun Order Lot		10	
Packing Design			

42 Series Micro Switch

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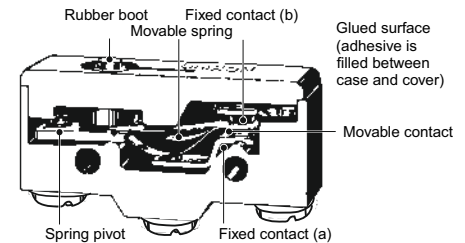
Contact Ratings

Contact Gap	Rated Voltage	Non-inductive load (A)				Non-inductive load (A)			
		Resistive Load		Lamp Load		Inductive load		Motor load	
		NC	NO	NC	NO	NC	NO	NC	NO
1.8mm	8VDC	15	3	1.5		15	5	2.5	
	14VDC	15	3	1.5		15	5	2.5	
	30VDC	15	3	1.5		10	5	2.5	
	125VDC	0.75	0.75	0.75		0.4	0.4	0.4	
	250VDC	0.3	0.3	0.3		0.2	0.2	0.2	
	125VAC	15	3	1.5		15	5	2.5	
	250VAC	15	2.5	1.25		15	3	1.5	
	500VAC	10	1.5	0.75		6	1.5	0.75	

Structure

Drip-proof Construction

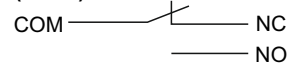
• Without Terminal Protective Cover



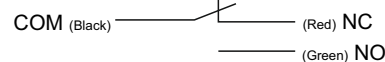
Contact Specification

Item	Classification	42.15
Contacts	Shape	Rivet
	Material	Silver
Inrush Current	NC	30A max.
	NO	15A max.

Contact From (SPDT)

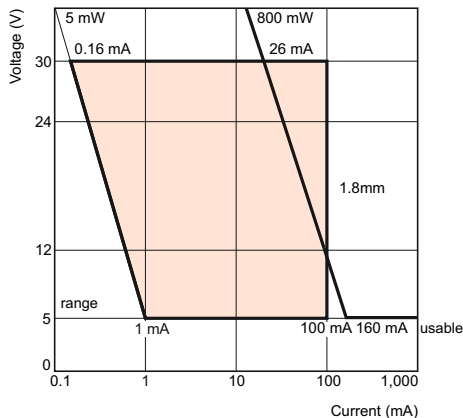


Molded Terminals

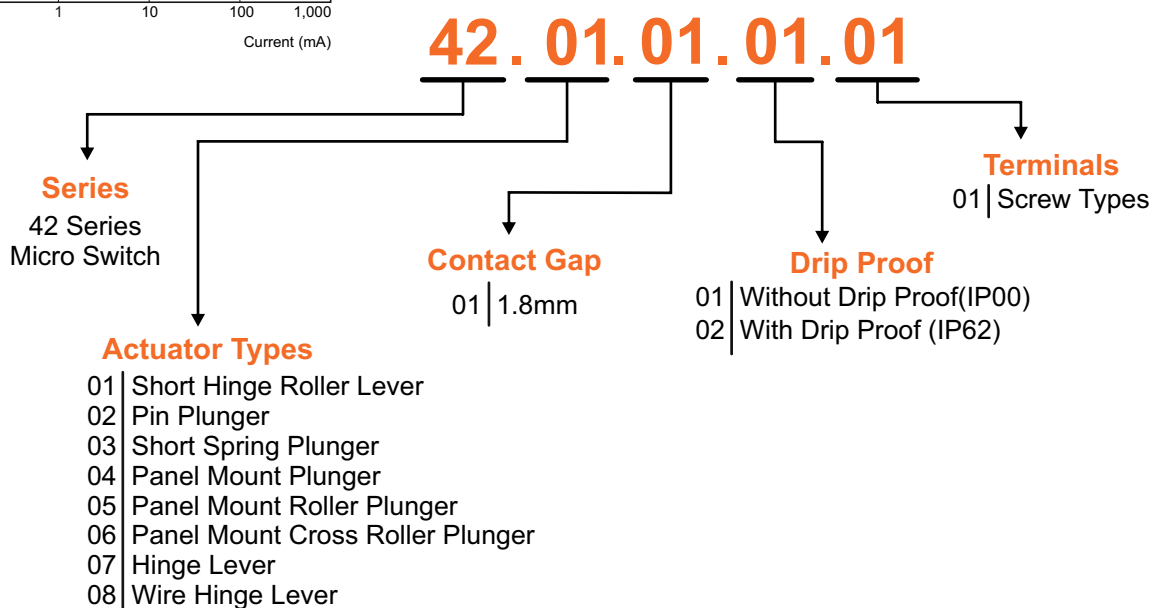


() Indicates wire color

Use the switch within the operating range.



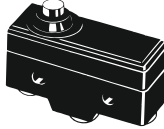
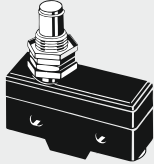
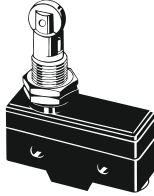
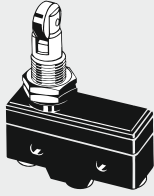
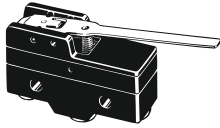
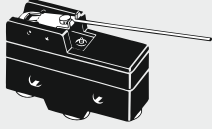
ORDERING TABLE



42 Series Micro Switch

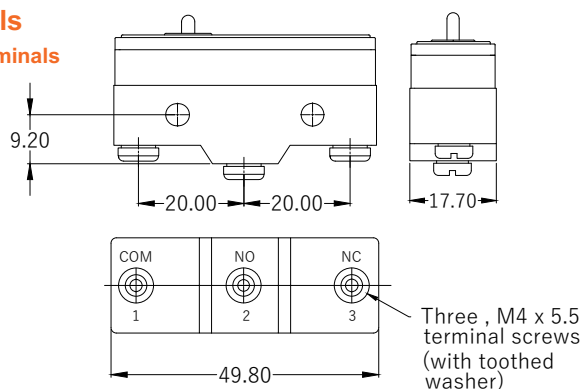
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Model Number Selection

Appearance	Actuator	Model Number
	Short Hinge Roller Lever	42.01.01.01.01
	Pin Plunger	42.02.01.01.01
	Short Spring Plunger	42.03.01.01.01
	Panel Mount Plunger	42.04.01.01.01
	Panel Mount Roller Plunger	42.05.01.01.01
	Panel Mount Cross Roller Plunger	42.06.01.01.01
	Hinge Lever	42.07.01.01.01
	Wire Hinge Lever	42.08.01.01.01

Terminals

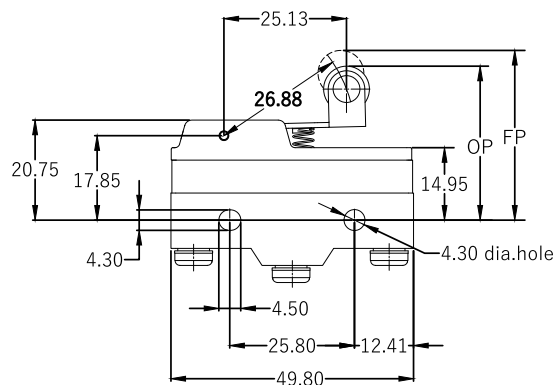
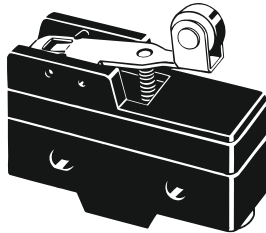
Screw Terminals



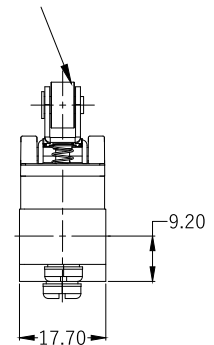
Appropriate terminal screw tightening torque: 0.78 to 1.18 N·m.

Dimensions and Operating Properties

Short Hinge Roller Lever



10.00mm dia x 3.90mm
(metallic roller)



Operating Characteristics

42.01.01.01.01

Actuator

Operating force OF max.
Release force RF min.
Overtravel OT min.
Movement Differential MD max.

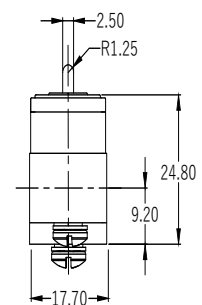
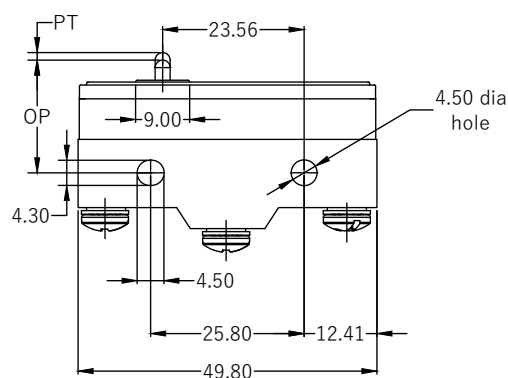
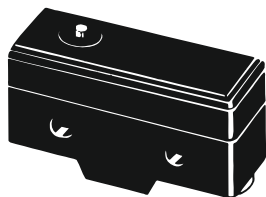
1.94 N
0.41 N
2.4 mm
1.3 mm

Short Hinge Roller Lever

Operating Position FP max.
OP

45.0 mm (± 0.4)
40.3 ± 0.4 mm

Pin Plunger



Operating Characteristics

42.02.01.01.01

Actuator

Operating force OF
Release force RF min.
Pretravel PT max.
Overtravel OT min.
Movement Differential MD max.

2.45 to 3.43 N
1.12 N
0.4 mm
0.13 mm
0.05 mm

Pin Plunger

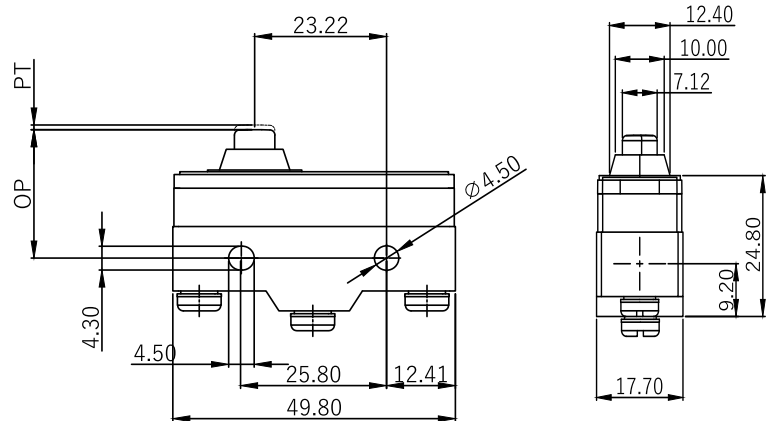
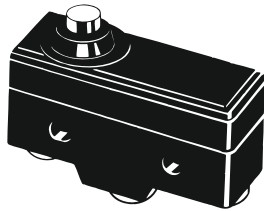
Operating Position OP 15.9 ± 0.4 mm

42 Series Micro Switch

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Dimensions and Operating Properties

Short Spring Plunger



Operating Characteristics

42.03.01.01.01

Actuator

Operating force	OF
Release force	RF min.
Pretravel	PT max.
Overtravel	OT min.
Movement Differential	MD max.

2.45 to 3.43 N
1.12 N
0.4 mm
1.6 mm
0.05 mm

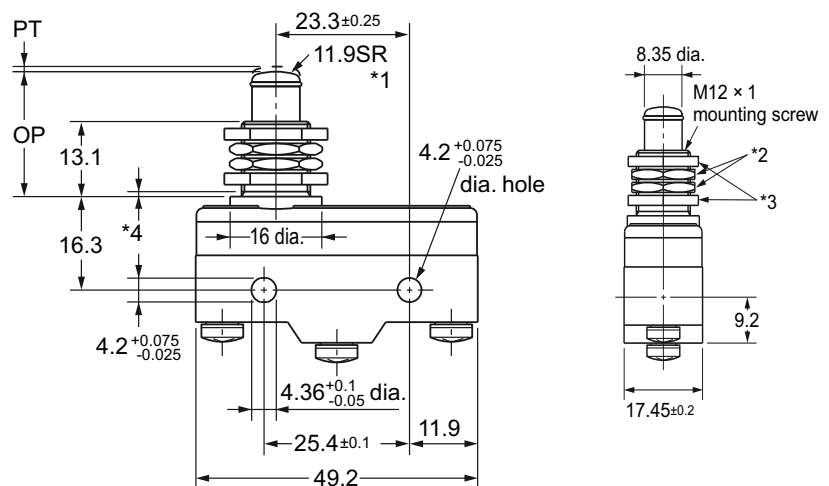
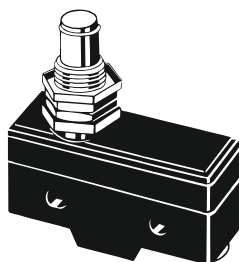
Short Spring Plunger

Operating Position

OP

21.5±0.5 mm

Panel Mount Plunger



Operating Characteristics

42.04.01.01.01

Actuator

Operating force	OF
Release force	RF min.
Pretravel	PT max.
Overtravel	OT min.
Movement Differential	MD max.

2.45 to 3.43 N
1.12 N
0.4 mm
5.5 mm
0.05 mm

Panel Mount Plunger

Operating Position

OP

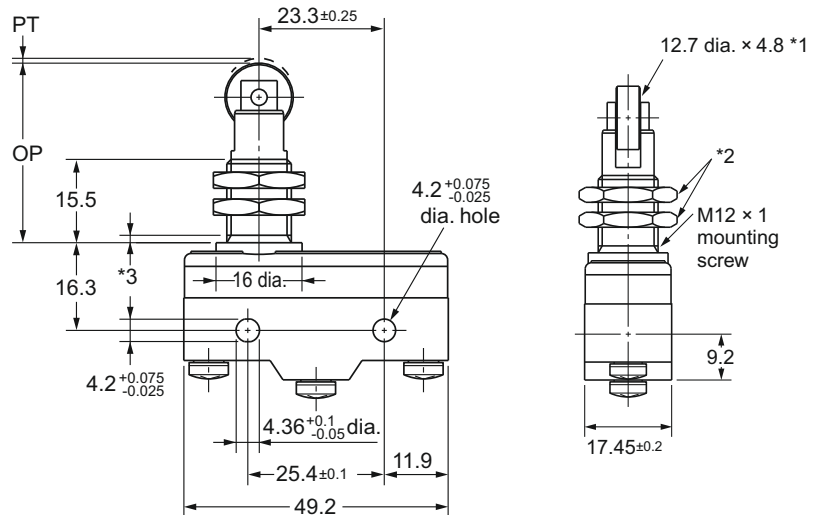
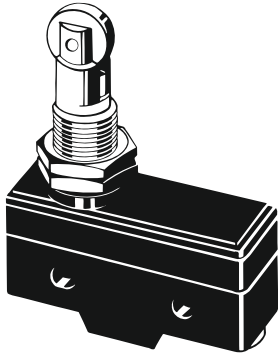
21.8±0.8 mm

42 Series Micro Switch

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Dimensions and Operating Properties

Panel Mount Roller Plunger



Operating Characteristics

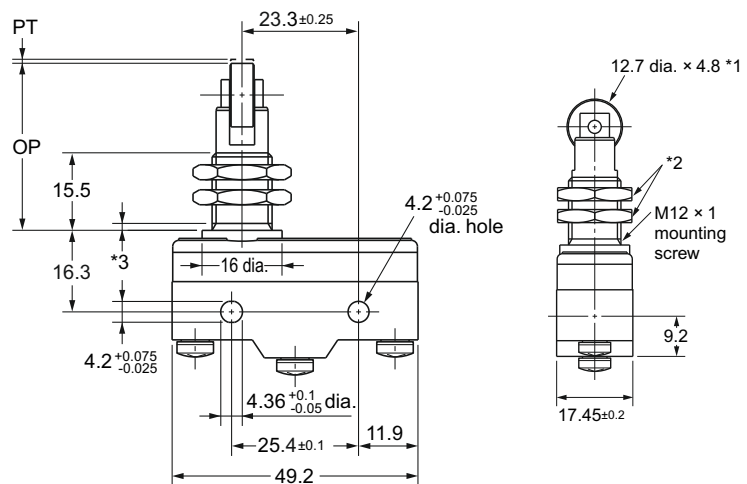
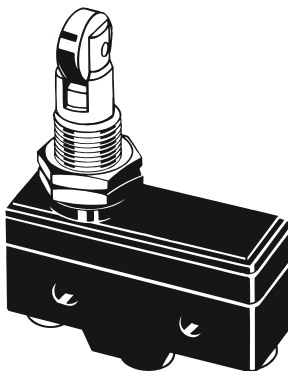
42.05.01.01.01

Actuator

Operating force	OF	2.45 to 3.43 N
Release force	RF min.	1.12 N
Pretravel	PT max.	0.4 mm
Overtravel	OT min.	5.5 mm
Movement Differential	MD max.	0.05 mm
Operating Position	OP	21.8±0.8 mm

Panel Mount Roller Plunger

Panel Mount Cross Roller Plunger



Operating Characteristics

42.06.01.01.01

Actuator

Operating force	OF	2.45 to 3.43 N
Release force	RF min.	1.12 N
Pretravel	PT max.	0.4 mm
Overtravel	OT min.	5.5 mm
Movement Differential	MD max.	0.05 mm
Operating Position	OP	21.8±0.8 mm

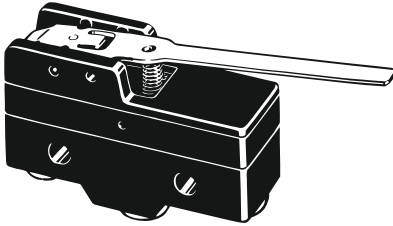
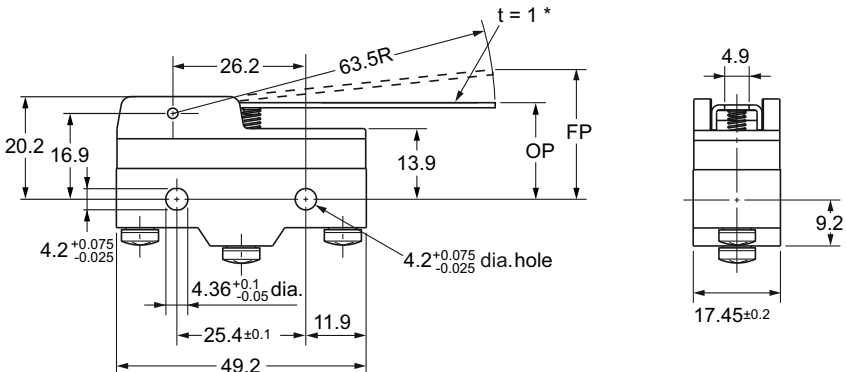
Panel Mount Cross Roller Plunger

42 Series Micro Switch

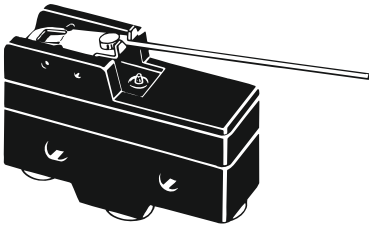
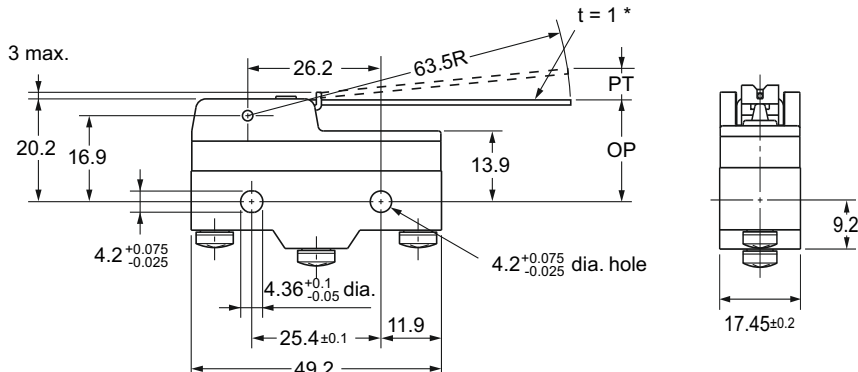
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Dimensions and Operating Properties

Hinge Lever

			
Operating Characteristics		42.07.01.01.01	Actuator
Operating force	OF max.	1.47 to 1.96 N	Hinge Lever
Release force	RF min.	0.92 N	
Overtravel	OT min.	5.6 mm	
Movement Differential	MD max.	1.27 mm	
Operating Position	FP max. OP	28.2 mm 19±0.8 mm	

Wire Hinge Lever

			
Operating Characteristics		42.08.01.01.01	Actuator
Operating force	OF	58.8 mN	Wire Hinge Lever
Release force	RF min.	4.90 mN	
Pretravel	PT max.	8.3 mm	
Overtravel	OT min.	5.6 mm	
Movement Differential	MD max.	0.65 mm	
Operating Position	OP	19±1 mm	

Safety Precautions

Terminal Connection

When soldering lead wires to the Switch, make sure that the capacity of the soldering iron is 60 W maximum. Do not take more than 5 s to solder any part of the Switch. The characteristics of the Switch will deteriorate if a soldering iron with a capacity of more than 60 W is applied to any part of the Switch for 5 s or more.

Operation

- Make sure that the switching frequency or speed is within the specified range.
- 1. If the switching speed is extremely slow, the contact may not be switched smoothly, which may result in a contact failure or contact welding.
- 2. If the switching speed is extremely fast, switching shock may damage the Switch soon. If the switching frequency is too high, the contact may not catch up with the speed.

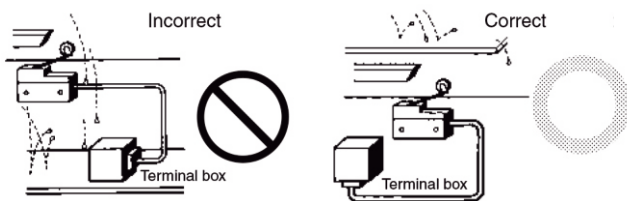
The rated permissible switching speed and frequency indicate the switching reliability of the Switch. The life of a Switch is determined at the specified switching speed. The life varies with the switching speed and frequency even when they are within the permissible ranges. In order to determine the life of a Switch model to be applied to a particular use, it is best to conduct an appropriate durability test on some samples of the model under actual conditions.

- Make sure that the actuator travel does not exceed the permissible OT position. The operating stroke must be set to 70% to 100% of the rated OT.

Precautions for Correct Use

Mounting Location

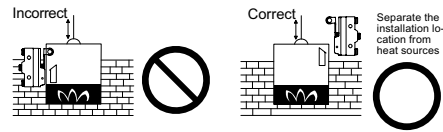
- Do not use the switch alone in atmospheres such as flammable or explosive gases. Arcing and heat generation associated with switching may cause fires or explosions.
- Switches are generally not constructed with resistance against water. Use a protective cover to prevent direct spraying if the switch is used in locations subject to splashing or spurring oil or water, dust adhering.



- Install the switch in a location that is not directly subject to debris and dust from cutting. The actuator and the switch body must be protected from accumulated cutting debris and dirt.



- Do not use the switch in locations subject to hot water (greater than 60°C) or in water vapor.
- Do not use the switch outside the specified temperature and atmospheric conditions. The permissible ambient temperature depends on the model. (Refer to the specifications in this catalog.) Sudden thermal changes may cause thermal shock to distort the switch and result in faults.



- Mount a cover if the switch is to be installed in a location where worker inattention could result in incorrect operation or accidents.



- Subjecting the switch to continuous vibration or shock may result in contact failure or faulty operation due to abrasion powder and in reduced durability. Excessive vibration or shock will cause the contacts to operate malfunction or become damaged. Mount the switch in a location that is not subject to vibration or shock and in a direction that does not subject the switch to resonance.
- If silver contacts are used with relatively low frequency for a long time or are used with microloads, the sulfide coating produced on the contact surface will not be broken down and contact faults will result. Use a microload switch that uses gold contacts.
- Do not use the switch in atmospheres with high humidity or heat or in harmful gases, such as sulfide gas (H₂S, SO₂), ammonia gas (NH₃), nitric acid gas (HNO₃), or chlorine gas (Cl₂). Doing so may impair functionality, such as with damage due to contacting faults or corrosion.
- The switch includes contacts. If the switch is used in an atmosphere with silicon gas, arc energy may cause silicon oxide (SiO₂) to accumulate on the contacts and result in contact failure. If there is silicon oil, silicon filling, silicon wiring, or other silicon products in the vicinity of the switch, use a contact protection circuit to limit arcing and remove the source of the silicon gas.

Mounting

Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. Electric shock or burning may occur.

Selecting Models

We recommend using Drip-proof Models (protection equivalent to IP62) in locations subject to floating dirt and dust. Other models do not have a protective structure.

Wiring

- Use wire sizes that are suitable to the applied voltage and carried current.
- If you use a soldering iron to solder the wires, do not allow the tip of the soldering iron to exceed 380°C. If a Switch is used with insufficient soldering, abnormal heat and burning may occur.
- Solder for no more than 5 s at 350°C and for no more than 3 s at 380°C. If heat is applied for too long, the case may melt, the lead wire coverings may be scorched, and other characteristics of the Switch may deteriorate.

Tightening

The suitable tightening torque for screw terminals is given below.
Screw terminals except for those on Split-contact : 0.78 to 1.18 N·m
Screw terminals on Split-contact : 0.49 to 1.18 N·m

Operation

- Make sure that the switching speed and frequency are within the specified ranges.
- 1. If the switching speed is extremely slow, the contacts may not be switched smoothly, which may result in a contact failure or contact welding.
- 2. If the switching speed is extremely fast, switching shock may damage the Switch prematurely. If the switching frequency is too high, the contacts may not be able to keep up with the speed. The rated permissible switching speed and frequency indicate the switching reliability of the Switch. The life of a Switch is determined at the specified switching speed. The life varies with the switching speed and frequency even when they are within the permissible ranges. Always conduct appropriate durability tests under actual conditions before using a Switch.



WERNER

Inventing Innovation...

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