# SS Series Compatible Mounting with a Simple Construction and Easy-to-Use Design Concept

- One-piece terminal construction to keep out flux.
- A single leaf movable spring construction.
- Conforms to North American and European safety Standards.

**RoHS Compliant** 



## **Model Number Legend**

SS-1 G 2 P 3

1. Ratings
3: 125 VAC 3 A
01: 30 VDC 0.1 A

2. Actuator

None: Pin plunger

L: Hinge lever

L13: Simulated roller lever

## - 3. Terminals

None: Solder terminals

T : Quick-connect terminals (#110)

D : PCB terminals

## **List of Models**

Ratings	Actuator	Terminals	Solder terminals	Quick-connect terminals (#110)	PCB terminals
	Pin plunger	-	SS-3GP	SS-3GPT	SS-3GPD
3A	Hinge lever	<b>*</b>	SS-3GLP	SS-3GLPT	SS-3GLPD
	Simulated roller lever	}	SS-3GL13P	SS-3GL13PT	SS-3GL13PD
	Pin plunger	-	SS-01GP	SS-01GPT	SS-01GPD
0.1A	Hinge lever		SS-01GLP	SS-01GLPT	SS-01GLPD
	Simulated roller lever	}	SS-01GL13P	SS-01GL13PT	SS-01GL13PD

## **Contact Form**

### **●**SPDT



Separator (Sold Separately), Terminal Connector (Sold Separately) → Refer to "Basic Switch Common Accessories"

## **Contact Specifications**

Item	Model	SS-3P models	SS-01P models
Specification		Rivet	Crossbar
Contact	Material	Silver	Gold alloy
	Gap (standard value)	0.5 mm	0.5 mm
Minimum applicable load (reference value) *		5 VDC 160 mA	5 VDC 1 mA

Please refer to "Using Micro Loads" in "●Precautions" for more information on the minimum applicable load.

## Ratings

	Model	SS-3P models	SS-01P models	
Rated voltage Item		Resistive load		
125 VAC		3 A	0.1 A	
30 VDC		3 A	0.1 A	

- Note 1. The above rating values apply under the following test conditions.
  - (1) Ambient temperature: 20±2°C
  - (2) Ambient humidity: 65±5%
  - (3) Operating frequency: 20 operations/min
- Note 2. Consult your OMRON sales representative for information on models for other loads.

## **Approved Safety Standards**

## UL (UL1054/CSA C22.2 No.55)

	Model	SS-3P	SS-01P
Rated voltage	Item	Resistive load	
125 VAC		3 A	0.1 A
30 VDC		3 A	0.1 A

#### **VDE (EN61058-1)**

Rated voltage	Model	SS-3P	SS-01P
125 VAC		3 A	0.1 A
30 VDC		3 A	0.1 A

Testing conditions: 5E4 (50,000 operations) T55 (0 to 55°C)

## **Characteristics**

Item Model		SS-3P models SS-01P models					
Permissible operating speed		0.1 mm to 1 m/s (for pin plunger models)					
Permissible Mechanical		300 operations/min					
operating frequency	Electrical	30 operations/min					
Insulation resist	tance	100 M $\Omega$ min. (at 500 VDC	with insulation tester)				
Contact resistar	nce (initial value)	50 mΩ max.	100 mΩ max.				
	Between terminals of the same polarity	1,000 VAC 50/60	Hz for 1 min				
Dielectric strength *1	Between current-carrying metal parts and ground	1,500 VAC 50/60 Hz for 1 min					
Between each terminals and non-current-carrying metal parts		1,500 VAC 50/60 Hz for 1 min					
Vibration resistance *2	Malfunction	10 to 55 Hz, 1.5 mm double amplitude					
Shock	Durability	1,000 m/s <sup>2</sup> {approx. 100G} max.					
resistance	Malfunction *2	300 m/s <sup>2</sup> {approx. 30G} max.					
	Mechanical	1,000,000 operations min. (60 operations/min)					
Durability *3	Flactainal	70,000 operations min. (20 operations/min, 125 VAC)	000 000				
	Electrical	100,000 operations min. (20 operations/min, 30 VDC)	200,000 operations min. (20 operations/min)				
Degree of prote	ection	IEC IP40					
Degree of protection against electric shock		Class I					
Proof tracking index (PTI)		250					
Ambient operating temperature		-25°C to +85°C (at ambient humidity of 60% max.) (with no icing or condensation)					
Ambient operating humidity		85% max. (for +5 to +35°C)					
Weight		Approx. 1.6 g (pin plunger models)					

Note. The data given above are initial values.

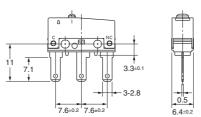
- The values for dielectric strength shown are for models with a Separator (refer to "Micro Switch Common Accessories").
- The values are at Free Position and Total Travel Position values for pin plunger, and Total Travel Position value for lever. Close or open circuit of the contact is 1 ms max. For testing conditions, consult your OMRON sales representative.
- \*3.

## Terminals/Appearances (Unit: mm)

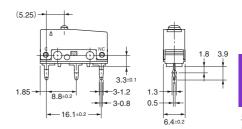
### Solder terminals

# 3.2 3-1.6 dia, holes 2.15 <del>-</del> 8.55

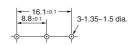
### ●Quick Connect Terminals (#110)



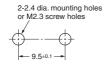
## ●PCB terminals



<PCB Mounting Dimensions (Reference)>



## Mounting Holes (Unit: mm)

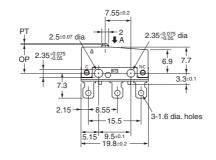


## Dimensions (Unit: mm) and Operating Characteristics

The illustrations and dimensions are for models with solder terminals. Refer to "Terminals/Appearances" for details on models with quick connect terminals (#110) or PCB terminals.

## Pin plunger SS-3GP SS-01GP



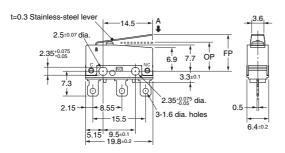


Operating
Operating Releasing
Pretravel Overtravel Movement
Operating

Operating characteristic	Model	SS-3GP	SS-01GP	
Operating Force OF		Max.	1.50 N {153 gf}	
Releasing Force	RF	Min.	0.2 N {20 gf}	
Pretravel	PT	Max.	0.6 mm	
Overtravel	OT	Min.	0.4 mm	
Movement Differential	MD	Max.	0.15 mm	
Operating Position OP			8.4±0	.3 mm

## Hinge lever SS-3GLP SS-01GLP



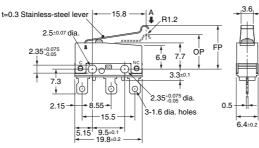


Operating characteristic	Model	SS-3GLP	SS-01GLP	
Operating Force OF		Max.	0.5 N {51 gf}	
Releasing Force	RF	Min.	0.05 N {5 gf}	
Overtravel	ОТ	Min.	1.0 mm	
Movement Differential	MD	Max.	0.8 mm	
Free Position	FP	Max.	13.6 mm	
Operating Position	OP		8.8±0.8 mm	
<u> </u>		•	•	

## Simulated roller lever

SS-3GL13P SS-01GL13P





Operating characteristic	Model	SS-3GL13P	SS-01GL13P	
Operating Force	OF	Max.		(51 gf)
Releasing Force	RF	Min.		I (5 gf)
Overtravel	OT	Min.	1.0 mm	
Movement Differential	MD	Max.	0.8 mm	
Free Position Operating Position	FP OP	Max.		mm ).8 mm

- Note 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.
- Note 2. The operating characteristics are for operation in the A direction (  $\P$  ).

## **Precautions**

#### ★Please refer to "Common Precautions" for correct use.

#### **Cautions**

#### Soldering

• Connecting to Solder Terminals

Complete the soldering at the iron tip temperature of 350 to 400°C within 5 seconds, and do not apply any external force for 1 minute after soldering. Soldering at an excessively high temperature or soldering for more than 5 seconds may deteriorate the characteristics of the Switch.

Connecting to PCB terminals

When using automatic soldering baths, we recommend soldering at 260±5°C within 5 seconds. Make sure that the liquid surface of the solder does not flow over the edge of the board.

When soldering terminals manually, complete the soldering at the iron tip temperature between 350 to 400°C within 3 seconds, and do not apply any external force for 1 minute after soldering. When applying solder, keep the solder away from the case of the Switch and do not allow solder or flux to flow into the case.

#### **Correct Use**

#### Mounting

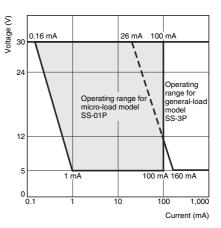
Use M2.3 mounting screw with plane washers or spring washers to securely mount the Switch. Tighten the screws to a torque of 0.23 to 0.26 N·m {2.3 to 2.7 kgf·cm}.

#### Using Micro Loads

Using a model for ordinary loads to open or close the contact of a micro load circuit may result in faulty contact. Use models that operate in the following range. However, even when using micro load models within the following operating range, if inrush current occurs when the contact is opened or closed, it may increase the contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary. The N-level reference value applies for the minimum applicable load. This value indicates the malfunction reference level for the reliability level of 60% ( $\lambda$ 60).

(JIS C5003)

The equation,  $\lambda_{60}=0.5\times10^{-6}$ /operation indicates that the estimated malfunction rate is less than  $\frac{1}{2,000,000}$  operations with a reliability level of 60%.



Note: Do not use this document to operate the Unit.

**OMRON Corporation** 

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Application examples provided in this document are for reference only. In actual applications, confirm equipment functions and safety before using the product.
 Consult your OMRON representative before using the product under conditions which are not described in the manual or applying the product to nuclear control systems, railroad systems, aviation systems, vehicles, combustion systems, medical equipment, amusement machines, safety equipment, and other systems or equipment that may have a serious influence on lives and property if used improperly. Make sure that the ratings and performance characteristics of the product provide a margin of safety for the system or equipment, and be sure to provide the system or equipment with double safety mechanisms.

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