

# Snap Action Switch SS

## Subminiature Snap Action Switch






- Economical, subminiature snap action switch offers long service life (30 million operations minimum)
- All models are free from overtravel restrictions, permit easy setting
- Wide switching capacity range from microvoltage/current loads (1 mA at 5 VDC to high-capacity loads 10.1 A at 250 VAC)
- Standard operating force, low force or super-low force models available
- RoHS Compliant



## Ordering Information

### ■ Standard Type

Microvoltage/microcurrent load 0.1 A max. (Bifurcated crossbar contacts)

Actuator	Contact OF	Model				
		PCB terminal			Soldered terminal	Tab (#110) terminal
		Straight vertical	Parallel to left	Parallel to right		
Pin plunger 	25 g	SS-01-ED	—	—	SS-01-E	SS-01-ET
	50 g	SS-01-FD	—	—	SS-01-F	SS-01-FT
	150 g	SS-01D	SS-01D1	SS-01D2	SS-01	SS-01T
Hinge lever 	8 g	SS-01GL-ED	—	—	SS-01GL-E	SS-01GL-ET
	16 g	SS-01GL-FD	—	—	SS-01GL-F	SS-01GL-FT
	50 g	SS-01GLD	SS-01GLD1	SS-01GLD2	SS-01GL	SS-01GLT
Simulated roller lever 	8 g	SS-01GL13-ED	—	—	SS-01GL13-E	SS-01GL13-ET
	16 g	SS-01GL13-FD	—	—	SS-01GL13-F	SS-01GL13-FT
	50 g	SS-01GL13D	—	—	SS-01GL13	SS-01GL13T
Formed hinge lever 	8 g	—	—	—	SS-01GL14-E	SS-01GL14-ET
	16 g	SS-01GL14-FD	—	—	SS-01GL14-F	—
	50 g	SS-01GL14D	—	—	SS-01GL14	SS-01GL14T
Hinged roller lever 	8 g	SS-01GL2-ED	—	—	SS-01GL2-E	SS-01GL2-ET
	16 g	SS-01GL2-FD	—	—	SS-01GL2-F	SS-01GL2-FT
	50 g	SS-01GL2D	—	—	SS-01GL2	SS-01GL2T

## General-Purpose

### 5 A max. (Standard rivet contacts)

Actuator	Contact OF	Model				Soldered terminal	Tab (#110) terminal
		PCB terminal					
		Straight vertical	Parallel to left	Parallel to right			
Pin plunger	50 g	SS-5-FD	SS-5-FD1	SS-5-FD2	SS-5-F	SS-5-FT	
	150 g	SS-5D	SS-5D1	SS-5D2	SS-5	SS-5T	
Hinge lever	16 g	SS-5GL-FD	SS-5GL-FD1	SS-5GL-FD2	SS-5GL-F	SS-5GL-FT	
	50 g	SS-5GLD	SS-5GLD1	SS-5GLD2	SS-5GL	SS-5GLT	
Simulated roller lever	16 g	SS-5GL13-FD	—	SS-5GL13-FD2	SS-5GL13-F	SS-5GL13-FT	
	50 g	SS-5GL13D	SS-5GL13D1	SS-5GL13D2	SS-5GL13	SS-5GL13T	
Formed hinge lever	16 g	SS-5GL14-FD	SS-5GL14-FD1	—	SS-5GL14-F	SS-5GL14-FT	
	50 g	SS-5GL14D	SS-5GL14D1	SS-5GL14D2	SS-5GL14	SS-5GL14T	
Hinge roller lever	16 g	SS-5GL2-FD	SS-5GL2-FD1	SS-5GL2-FD2	SS-5GL2-F	SS-5GL2-FT	
	50 g	SS-5GL2D	SS-5GL2D1	SS-5GL2D2	SS-5GL2	SS-5GL2T	

### 10.1 A max. (Standard rivet contacts)

Actuator	Contact OF	Model				Soldered terminal	Tab (#110) terminal
		PCB terminal					
		Straight vertical	Parallel to left	Parallel to right			
Pin plunger	150 g	SS-10D	—	—	SS-10	SS-10T	
Hinge lever	50 g	SS-10GLD	—	—	SS-10GL	SS-10GLT	
Simulated roller lever	50 g	SS-10GL13D	—	—	SS-10GL13	SS-10GL13T	
Formed hinge lever	50 g	—	—	—	SS-10GL14	—	
Hinge roller lever	50 g	SS-10GL2D	—	—	SS-10GL2	SS-10GL2T	

## Specifications

### Characteristics

<b>Switch type</b>	General-purpose	
<b>Operating speed (see note 3)</b>	0.1 mm to 1 m/second (0.004 to 39.4 in/second)	
<b>Operating frequency</b>	<b>Mechanical</b>	400 operations per minute (pin plunger actuator type)
	<b>Electrical</b>	60 operations per minute (pin plunger actuator type)
<b>Insulation resistance</b>	100 MΩ at 500 VDC	
<b>Dielectric strength</b>	<b>Crossbar contact type</b>	600 VAC, 50/60 Hz for 1 minute (see note 1)
	<b>Others</b>	1,000 VAC, 50/60 Hz for 1 minute between terminals of same polarity 1,500 VAC, 50/60 Hz for 1 minute between current-carrying parts and ground and between each terminal and noncurrent-carrying metal parts
<b>Vibration</b>	<b>Malfunction durability</b>	10 to 55 Hz, 1.5 mm double amplitude
<b>Shock</b>	<b>Mechanical durability</b>	Low-OFF type: 500 m/s <sup>2</sup> min. (approx. 50 g) Others: 1,000 m/s <sup>2</sup> min. (approx. 100 g)
		<b>Malfunction durability</b>
	Lever type at TTP: Contact gap, 1 ms max.	
	<b>Ambient temperature</b>	<b>Operating</b>
<b>Humidity</b>	85% RH max.	
<b>Service life</b>	<b>Mechanical</b>	30 million operations minimum (OT: rated value) (see note 4)
	<b>Electrical</b>	200,000 operations minimum (rated load) (see note 2)
<b>Weight</b>	Approx. 1.6 g pin plunger type	

- Note:**
1. SS-10 series only.
  2. 50,000 operations minimum for the SS-10 series.
  3. Applies to the pin plunger type (at the pin plunger of the lever type).
  4. 10 million operations for the SS-10 series.
  5. Data shown are of initial value.

## Operating Characteristics

Characteristics	Part number				
	SS-01-E	SS-01-F SS-5-F	SS-01 SS-5	SS-10	SS-01GL-E
OF max.	25 g	50 g	150 g	150 g	8 g
RF min.	2 g	4 g	25 g	25 g	1 g
PT max.	0.5 mm (0.020 in)	0.5 mm (0.020 in)	0.5 mm (0.020 in)	0.6 mm (0.024 in)	1.2 mm (0.047 in)
OT min.	0.5 mm (0.020 in)	0.5 mm (0.020 in)	0.5 mm (0.020 in)	0.4 mm (0.016 in)	0.8 mm (0.032 in)
MD max.	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.1 mm (0.004 in)	0.12 mm (0.005 in)	13.6 mm (0.535 in)
OP	8.4 ± 0.5 mm (0.331 ± 0.020 in)	8.4 ± 0.5 mm (0.331 ± 0.020 in)	8.4 ± 0.5 mm (0.331 ± 0.020 in)	8.4 ± 0.5 mm (0.331 ± 0.020 in)	8.8 ± 0.8 mm (0.346 ± 0.032 in)

Characteristics	Part number				
	SS-01GL-F SS-5GL-F	SS-01GL SS-5GL	SS-10GL	SS-10GL13-E	SS-10GL13-F SS-5GL13-F
OF max.	16 g	50 g	50 g	8 g	16 g
RF min.	2 g	6 g	6 g	1 g	2 g
PT max.	1.2 mm (0.047 in)	1.2 mm (0.047 in)	1.0 mm (0.039 in)	1.2 mm (0.047 in)	1.2 mm (0.047 in)
OT min.	0.8 mm (0.032 in)	0.8 mm (0.032 in)	1.0 mm (0.039 in)	0.8 mm (0.032 in)	0.8 mm (0.032 in)
MD max.	13.6 mm (0.535 in)	13.6 mm (0.535 in)	13.6 mm (0.535 in)	15.5 mm (0.610 in)	15.5 mm (0.610 in)
OP	8.8±0.8 mm (0.346±0.032 in)	8.8±0.8 mm (0.346±0.032 in)	8.8±0.8 mm (0.346±0.032 in)	10.7±0.8 mm (0.421±0.032 in)	10.7±0.8 mm (0.421±0.032 in)

Characteristics	Part number				
	SS-01GL13 SS-5GL13	SS-10GL13	SS-01GL14-E	SS-01GL14-F SS-5GL14-F	SS-01GL14 SS-5GL14
OF max.	50 g	50 g	8 g	16 g	50 g
RF min.	6 g	6 g	1 g	2 g	6 g
PT max.	1.2 mm (0.047 in)	1.0 mm (0.039 in)	1.2 mm (0.047 in)	1.2 mm (0.047 in)	1.2 mm (0.047 in)
OT min.	0.8 mm (0.032 in)	1.0 mm (0.039 in)	0.8 mm (0.032 in)	0.8 mm (0.032 in)	0.8 mm (0.032 in)
MD max.	15.5 mm (0.610 in)	15.5 mm (0.610 in)	14.9 mm (0.587 in)	14.9 mm (0.587 in)	14.9 mm (0.587 in)
OP	10.7 ± 0.8 mm (0.421 ± 0.032 in)	10.7 ± 0.8 mm (0.421 ± 0.032 in)	10.1 ± 0.8 mm (0.398 ± 0.032 in)	10.1 ± 0.8 mm (0.398 ± 0.032 in)	10.1 ± 0.8 mm (0.398 ± 0.032 in)

Characteristics	Part number				
	SS-10GL14	SS-01GL2-E	SS-01GL2-F SS-5GL2-F	SS-01GL2 SS-5GL2	SS-10GL2
OF max.	50 g	8 g	16 g	50 g	50 g
RF min.	6 g	1 g	2 g	6 g	6 g
PT max.	1.0 mm (0.039 in)	1.2 mm (0.047 in)	1.2 mm (0.047 in)	1.2 mm (0.047 in)	1.0 mm (0.039 in)
OT min.	1.0 mm (0.039 in)	0.8 mm (0.032 in)	0.8 mm (0.032 in)	0.8 mm (0.032 in)	1.0 mm (0.039 in)
MD max.	14.9 mm (0.587 in)	19.3 mm (0.760 in)	19.3 mm (0.760 in)	19.3 mm (0.760 in)	19.3 mm (0.760 in)
OP	10.1 ± 0.8 mm (0.398 ± 0.032 in)	14.5 ± 0.8 mm (0.571 ± 0.032 in)	14.5 ± 0.8 mm (0.571 ± 0.032 in)	14.5 ± 0.8 mm (0.571 ± 0.032 in)	14.5 ± 0.8 mm (0.571 ± 0.032 in)

## Ratings

### Microvoltage/microcurrent load type

Contact form	General purpose/resistive load	
	Bifurcated crossbar contacts	
	NC	NO
125 VAC	0.1 A	0.1 A
30 VDC	0.1 A	0.1 A
Inrush current	1 A max.	1 A max.

Standard type general purpose

Switch series:	Rivet contacts									
	Resistive load				Lamp load		Inductive load		Motor load	
	SS-5		SS-10		SS-5 and SS-10		SS-5 and SS-10		SS-5 and SS-10	
Contact form	NC	NO	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	5 A	5 A	10.1 A	10.1 A	1.5 A	0.7 A	3 A	3 A	2.5 A	1.3 A
250 VAC	3 A	3 A	10.1 A	10.1 A	1 A	0.5 A	2 A	2 A	1.5 A	0.8 A
8 VDC	5 A	5 A	10.1 A	10.1 A	2 A	2 A	5 A	4 A	3 A	3 A
14 VDC	5 A	5 A	10.1 A	10.1 A	2 A	2 A	4 A	4 A	3 A	3 A
30 VDC	4 A	4 A	4 A	4 A	2 A	2 A	3 A	3 A	3 A	3 A
125 VDC	0.4 A	0.4 A	0.4 A	0.4 A	0.05 A	0.05 A	0.4 A	0.4 A	0.05 A	0.05 A
250 VDC	0.2 A	0.2 A	0.2 A	0.2 A	0.03 A	0.03 A	0.2 A	0.2 A	0.03 A	0.03 A
Inrush current	20 A max. 10 A max. 20 A max. 15 A max. (both non-inductive and inductive loads)									

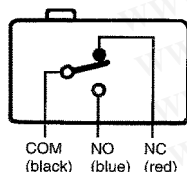
- Note:**
- The above current ratings are the values of the steady-state current.
  - Inductive load has a power factor of 0.4 min. (AC) and a time constant of 7 milliseconds max. (DC). The inductive load applicable to the SS-10 series must have a power factor of 0.75 min.
  - Lamp load has an inrush current of 10 times the steady-state current
  - Motor load has an inrush current of 6 times the steady-state current.
  - If the switch is used in a DC circuit and is subjected to inrush current or surge, connect a surge suppressor across the switch.

### Contact Resistance (mΩ max., initial)

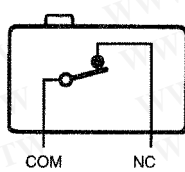
	SS-01□	SS-5□	SS-10□
Contact rating:	0.1 A	3 A or 5 A	10.1 A
Normal operating force models (SS-□)	50 mΩ	30 mΩ	30 mΩ
Low operating force models (SS-□-F)	100 mΩ	50 mΩ	—
Super-low operating force models (SS-□-E)	150 mΩ	—	—
Lead wire models (all OF types)	100 mΩ	50 mΩ	—

### Contact Form

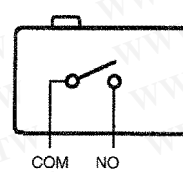
**SPDT**  
(common throughout the series)



**SPST-NC\***  
(standard models rated at 0.1 to 0.5 A)



**SPST-NO\***  
(standard models rated at 0.1 to 5 A)



Sealed lead wire terminal models have color coded leads.

\* Consult Omron for SPST-NC and SPST-NO contact form types ordering information.

### Approvals

UL (File No. E41515), CSA (File No. LR21642), SS-5/SS-10: EN conforms 61058-1

Type	Rating
SS-10 series	General-purpose type 10.1 A, 250 VAC
SS-5 series	General-purpose type 5 A, 125 V, 3 A 250 VAC
SS-01 series	Super-low force type 0.1 A, 125 VAC, 30 VDC

VDE (File No. 5861-3221)

Type	Rating
SS-5 series	General-purpose type 5 A, 250 VAC

SEMKO (File Nos. 43-8614026/43-891609)

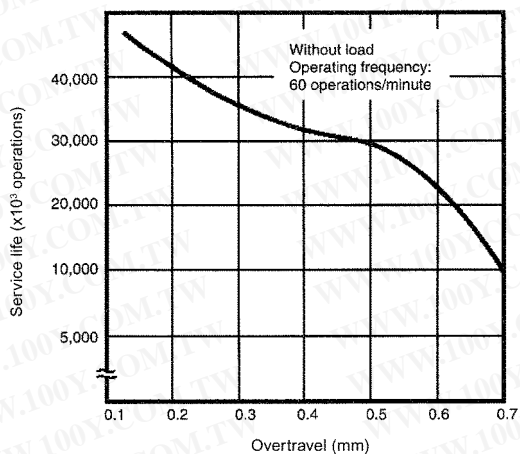
Type	Rating
SS-10 series	General-purpose type 10 A, 250 VAC
SS-5 series	General-purpose type 5 A, 250 VAC

**Note:** The rated values approved by each of the safety standards (e.g. UL, CSA) may be different from the performance characteristics individually defined in this catalog.

# Engineering Data

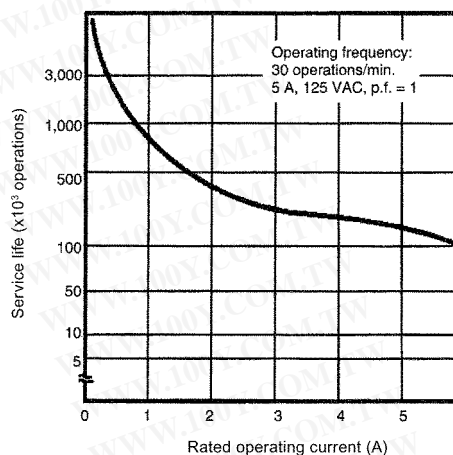
## Mechanical service life

Standard type (SS-5, SS-10 series)



## Electrical service life

Standard type (SS-5 series)

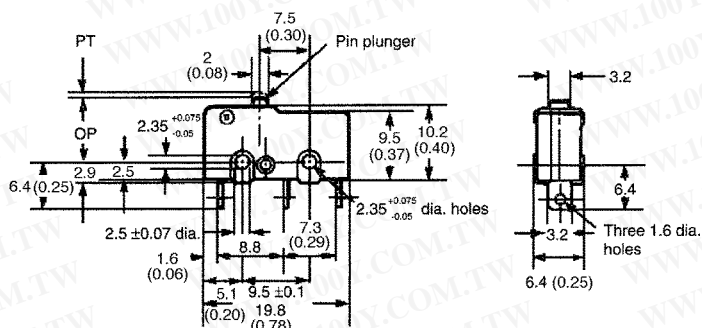


## Dimensions

Unit: mm (inch)

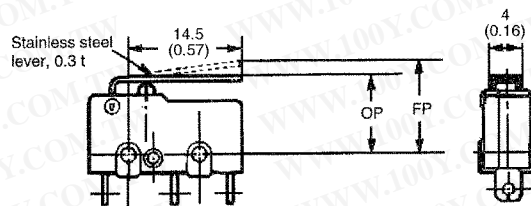
### Pin Plunger

- SS-01 (-E, -F)
- SS-5 (-F)
- SS-10



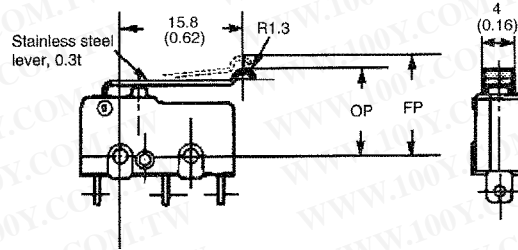
### Hinge Lever

- SS-01GL (-E, -F)
- SS-5GL (-F)
- SS-10GL



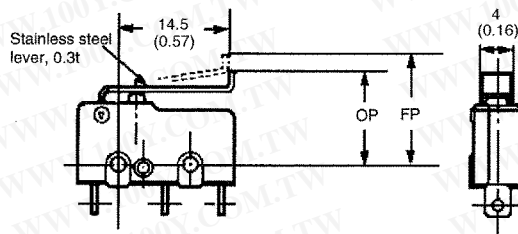
## ■ Simulated Roller Lever

SS-01GL13 (-E, -F)  
 SS-5GL13 (-F)  
 SS-10GL13



## ■ Formed Hinge Lever

SS-01GL14 (-E, -F)  
 SS-5GL14 (-F)  
 SS-10GL14

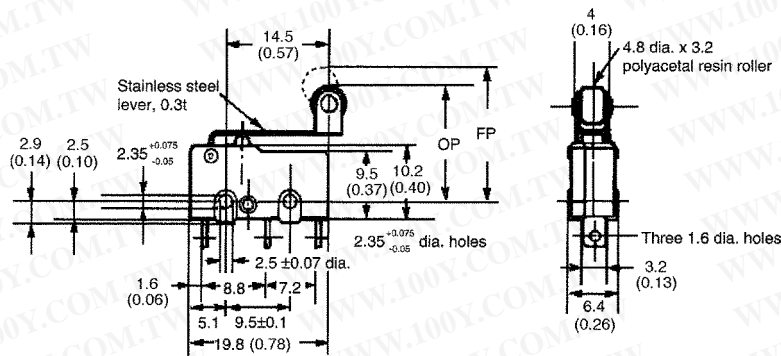


**Note:** 1. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

2. Straight vertical PCB terminal models are shown above. Soldered terminal, Tab (#110) terminal, lead wire terminal, PCB terminal parallel to left and PCB terminal parallel to right are shown in the Terminals section.

## ■ Hinge Roller Lever

SS-01GL2 (-E, -F)  
 SS-5GL2 (-F)  
 SS-10GL2

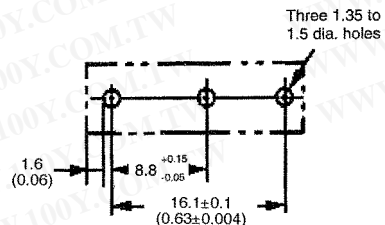
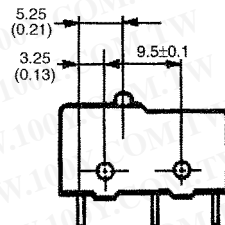
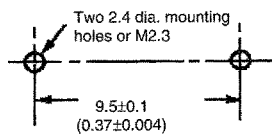


**Note:** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

## ■ Mounting holes

### Standard types

Mounting holes below are for reference only



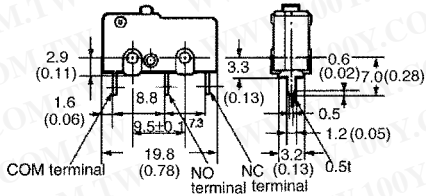
**Note:** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

Unit: mm (inch)

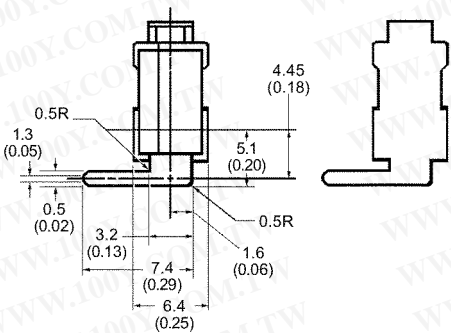
# Terminals

General-Purpose Type

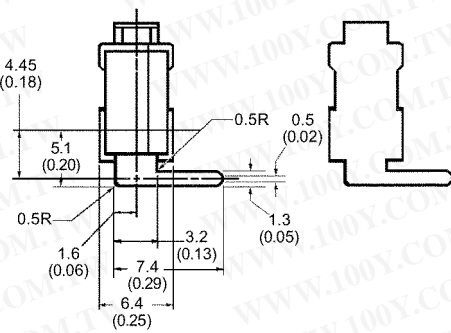
PCB terminal, straight vertical (D)



PCB terminal, parallel to left (D1)

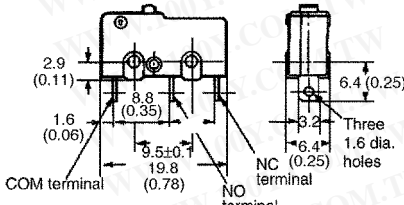


PCB terminal, parallel to right (D2)

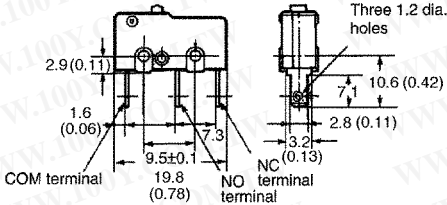


Note: Thickness of all the terminals is 0.5 mm.

Soldered terminal (blank)



Quick-connect tab (#110) terminal (T)



# Omron Electronic Components, LLC

## Terms and Conditions of Sales

### I. GENERAL

- Definitions:** The words used herein are defined as follows.
  - Terms:** These terms and conditions
  - Seller:** Omron Electronic Components LLC and its subsidiaries
  - Buyer:** The buyer of Products, including any end user in section III through VI
  - Products:** Products and/or services of Seller
  - Including:** Including without limitation
- Offer/Acceptance:** These Terms are deemed part of all quotations, acknowledgments, invoices, purchase orders and other documents, whether electronic or in writing, relating to the sale of Products by Seller. Seller hereby objects to any Terms proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
- Distributor:** Any distributor shall inform its customer of the contents after and including section III of these Terms.

### II. SALES

- Prices/Payment:** All prices stated are current, subject to change without notice by Seller. Buyer agrees to pay the price in effect at time of shipment. Payments for Products received are due net 30 days unless otherwise stated in the invoice. Buyer shall have no right to set off any amounts against the amount owing in respect of this invoice.
- Discounts:** Cash discounts, if any, will apply only on the net amount of invoices sent to Buyer after deducting transportation charges, taxes and duties, and will be allowed only if (a) the invoice is paid according to Seller's payment terms and (b) Buyer has no past due amounts owing to Seller.
- Interest:** Seller, at its option, may charge Buyer 1.5% interest per month or the maximum legal rate, whichever is less, on any balance not paid within the stated terms.
- Orders:** Seller will accept no order less than 200 U.S. dollars net billed.
- Currencies:** If the prices quoted herein are in a currency other than U.S. dollars, Buyer shall make remittance to Seller at the then current exchange rate most favorable to Seller; provided that if remittance is not made when due, Buyer will convert the amount to U.S. dollars at the then current exchange rate most favorable to Seller available during the period between the due date and the date remittance is actually made.
- Governmental Approvals:** Buyer shall be responsible for all costs involved in obtaining any government approvals regarding the importation or sale of the Products.
- Taxes:** All taxes, duties and other governmental charges (other than general real property and income taxes), including any interest or penalties thereon, imposed directly or indirectly on Seller or required to be collected directly or indirectly by Seller for the manufacture, production, sale, delivery, importation, consumption or use of the Products sold hereunder (including customs duties and sales, excise, use, turnover and license taxes) shall be charged to and remitted by Buyer to Seller.
- Financial:** If the financial position of Buyer at any time becomes unsatisfactory to Seller, Seller reserves the right to stop shipments or require satisfactory security or payment in advance. If Buyer fails to make payment or otherwise comply with these Terms or any related agreement, Seller may (without liability and in addition to other remedies) cancel any unshipped portion of Products sold hereunder and stop any Products in transit until Buyer pays all amounts, including amounts payable hereunder, whether or not then due, which are owing to it by Buyer. Buyer shall in any event remain liable for all unpaid accounts.
- Cancellation/ Etc:** Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
- Force Majeure:** Seller shall not be liable for any delay or failure in delivery resulting from causes beyond its control, including earthquakes, fires, floods, strikes or other labor disputes, shortage of labor or materials, accidents to machinery, acts of sabotage, riots, delay in or lack of transportation or the requirements of any government authority.
- Shipping/ Delivery:** Unless otherwise expressly agreed in writing by Seller:
  - All sales and shipments of Products shall be FOB shipping point (unless otherwise stated in writing by Seller), at which point title to and all risk of loss of the Products shall pass from Seller to Buyer, provided that Seller shall retain a security interest in the Products until the full purchase price is paid by Buyer;
  - Delivery and shipping dates are estimates only; and
  - Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
- Claims:** Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier must be presented in detail in writing to Seller within 30 days of receipt of shipment.

### III. PRECAUTIONS

- Suitability:** IT IS THE BUYER'S SOLE RESPONSIBILITY TO ENSURE THAT ANY OMRON PRODUCT IS FIT AND SUFFICIENT FOR USE IN A MOTORIZED VEHICLE APPLICATION. BUYER SHALL BE SOLELY RESPONSIBLE FOR DETERMINING APPROPRIATENESS OF THE PARTICULAR PRODUCT WITH RESPECT TO THE BUYER'S APPLICATION INCLUDING (A) ELECTRICAL OR ELECTRONIC COMPONENTS, (B) CIRCUITS, (C) SYSTEM ASSEMBLIES, (D) END PRODUCT, (E) SYSTEM, (F) MATERIALS OR SUBSTANCES OR (G) OPERATING ENVIRONMENT. Buyer acknowledges that it alone has determined that the Products will meet their requirements of the intended use in all cases. Buyer must know and observe all prohibitions of use applicable to the Products/s.
- Use with Attention:** The followings are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible use of any Product, nor to imply that any use listed may be suitable for any Product:
  - Outdoor use, use involving potential chemical contamination or electrical interference.
  - Use in consumer Products or any use in significant quantities.

- Energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.**
- Systems, machines, and equipment that could present a risk to life or property.**
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