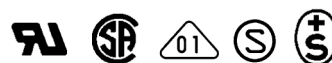


# Snap Action Switch SS

## 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				
		PCB terminal			Soldered terminal	Tab (#110) 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				
		PCB terminal			Soldered terminal	Tab (#110) 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-OF 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>	Standard type: 300 m/s <sup>2</sup> min. (approx. 30 g)
		Low-OF type: 200 m/s <sup>2</sup> min. (approx. 20 g)
	Lever type at TTP: Contact gap, 1 ms max.	
<b>Ambient temperature</b>	<b>Operating</b>	-25° to 85° C with no icing
<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
<b>OF max.</b>	25 g	50 g	150 g	150 g	8 g
<b>RF min.</b>	2 g	4 g	25 g	25 g	1 g
<b>PT max.</b>	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)
<b>OT min.</b>	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)
<b>MD max.</b>	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)
<b>OP</b>	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
<b>OF max.</b>	16 g	50 g	50 g	8 g	16 g
<b>RF min.</b>	2 g	6 g	6 g	1 g	2 g
<b>PT max.</b>	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)
<b>OT min.</b>	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)
<b>MD max.</b>	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)
<b>OP</b>	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.

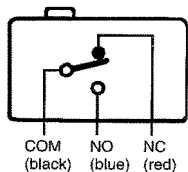
## ■ Contact Resistance (mΩ max., initial)

	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

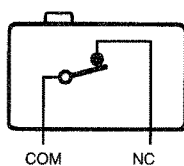
(common throughout the series)



Sealed lead wire terminal models have color coded leads.

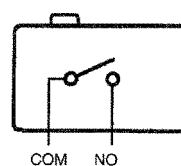
### SPST-NC\*

(standard models rated at 0.1 to 0.5 A)



### SPST-NO\*

(standard models rated at 0.1 to 5 A)



\* 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)

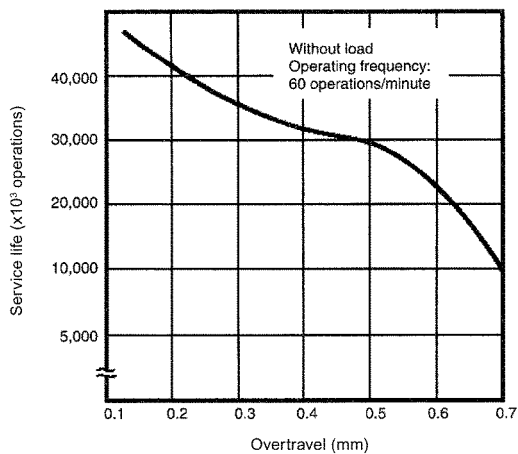
Type		Rating
SS-10 series	General-purpose type	10 A, 250 VAC
SS-5 series	General-purpose type	5 A, 250 VAC

**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

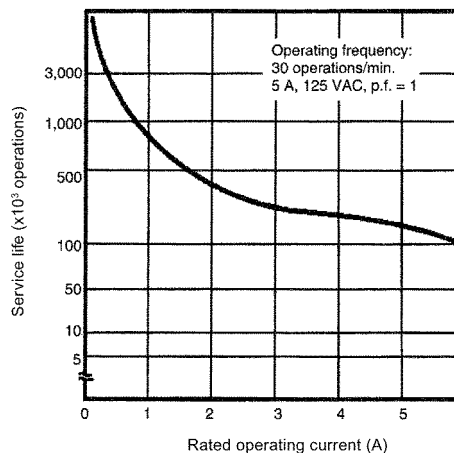
## ■ Mechanical service life

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



## ■ Electrical service life

Standard type (SS-5 series)



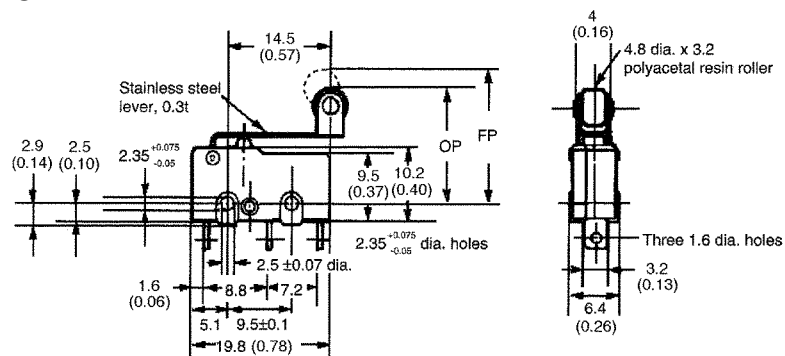


## ■ Hinge Roller Lever

SS-01GL2 (-E, -F)

SS-5GL2 (-F)

SS-10GL2

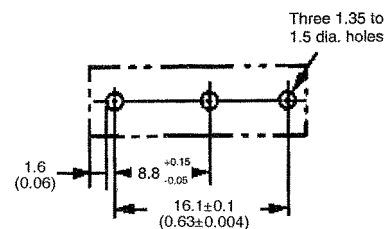
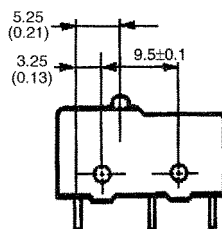
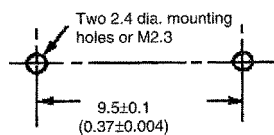


**Note:** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions.

## ■ 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.

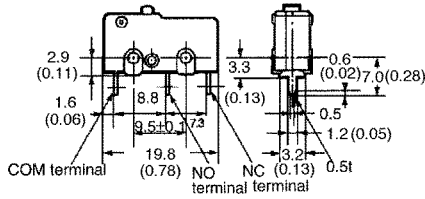


Unit: mm (inch)

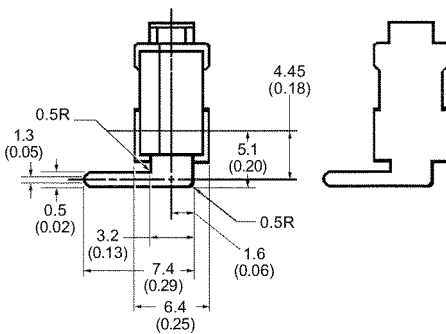
## ■ Terminals

### General-Purpose Type

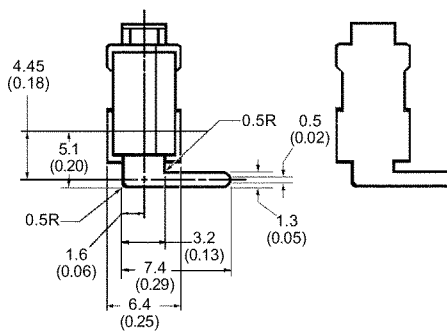
#### PCB terminal, straight vertical (D)



#### PCB terminal, parallel to left (D1)

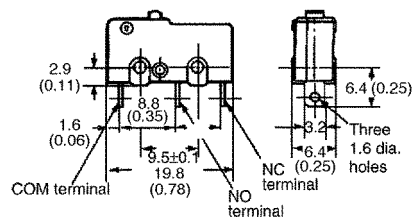


#### PCB terminal, parallel to right (D2)

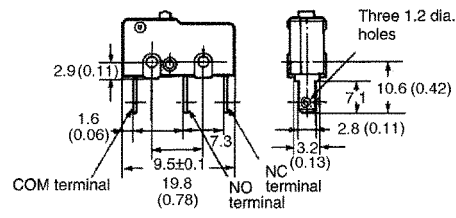


**Note:** Thickness of all the terminals is 0.5 mm.

#### Soldered terminal (blank)



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



MEMO

A large grid of dashed lines for taking notes, consisting of 20 columns and 30 rows.

# Terms and Conditions of Sale

1. Offer; Acceptance. These terms and conditions (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 or services (collectively, the "Products") by Omron Electronic Components LLC ("Seller"). Seller hereby objects to any terms or conditions proposed in Buyer's purchase order or other documents which are inconsistent with, or in addition to, these Terms.
2. 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.
3. 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 (i) the invoice is paid according to Seller's payment terms and (ii) Buyer has no past due amounts owing to Seller.
4. 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 and which is available on the due date; 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.
5. Governmental Approvals. Buyer shall be responsible for, and shall bear all costs involved in, obtaining any government approvals required for the importation or sale of the Products.
6. 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.
7. 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.
8. Cancellation; Etc. Orders are not subject to rescheduling or cancellation unless Buyer indemnifies Seller fully against all costs or expenses arising in connection therewith.
9. 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.
10. Shipping; Delivery. Unless otherwise expressly agreed in writing by Seller:
  1. Shipments shall be by a carrier selected by Seller;
  2. Such carrier shall act as the agent of Buyer and delivery to such carrier shall constitute delivery to Buyer;
  3. 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;
  4. Delivery and shipping dates are estimates only.
  5. Seller will package Products as it deems proper for protection against normal handling and extra charges apply to special conditions.
11. Claims. Any claim by Buyer against Seller for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Seller within 30 days of receipt of shipment and include the original transportation bill signed by the carrier noting that the carrier received the Products from Seller in the condition claimed.
12. Warranties. (a) Exclusive Warranty. Seller's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Seller (or such other period expressed in writing by Seller). Seller disclaims all other warranties, express or implied. (b) Limitations. SELLER MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. Seller further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Seller's sole obligation hereunder shall be to replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product or, at Seller's election, to repay or credit Buyer an amount equal to the purchase price of the Product; provided that in no event shall Seller be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Seller's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Seller before shipment. Seller shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies, or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing are not to be construed as an amendment to the above warranty.
13. Limitation on Liability; Etc. SELLER SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY. Further, in no event shall liability of Seller exceed the individual price of the Product on which liability is asserted.
14. Indemnities. Buyer shall indemnify and hold harmless Seller, its affiliates and its employees from and against all liabilities, losses, claims, costs and expenses (including attorney's fees and expenses) related to any claim, investigation, litigation or proceeding (whether or not Seller is a party) which arises or is alleged to arise from Buyer's acts or omissions under these Terms or in any way with respect to the Products. Without limiting the foregoing, Buyer (at its own expense) shall indemnify and hold harmless Seller and defend or settle any action brought against Seller to the extent that it is based on a claim that any Product made to Buyer specifications infringed intellectual property rights of another party.
15. Property; Confidentiality. The intellectual property embodied in the Products is the exclusive property of Seller and its affiliates and Buyer shall not attempt to duplicate it in any way without the written permission of Seller. Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling supplied by Seller to Buyer relating to the Products are confidential and proprietary, and Buyer shall limit distribution thereof to its trusted employees and strictly prevent disclosure to any third party.
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  - (i) Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this document.
  - (ii) 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.
  - (iii) Use in consumer products or any use in significant quantities.
  - (iv) Systems, machines and equipment that could present a risk to life or property. Please know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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