

Tactile Switch B3F

Miniature, Space-Saving Tactile Switch Provides Long Service Life and Easy Mounting

- Extended mechanical/electrical service life: 10×10^6 operations for 12 x 12 mm type and 1×10^6 operations for the 6 x 6 mm type
- Ideal for applications such as audio, office and communications equipment, measuring instruments, TVs, VCRs, etc.
- Taped radial type, vertical type and high force types are available.
- Gold plated models available for increased contact reliability, resistance to corrosive gas and insulation fault prevention for ion migration in harsh environments
- RoHS Compliant



Ordering Information

■ B3F-1□□□, B3F-3□□□

6 x 6 mm type

Type	Plunger	Switch height	Operating force	Model	
				Without ground terminal	With ground terminal
				Bags	Bags
Standard		4.3 mm	General-purpose: 100 g	B3F-1000	B3F-1100
			150 g	B3F-1002	B3F-1102
		High-force: 260 g	B3F-1005	B3F-1105	
	5.0 mm	General-purpose: 100 g	B3F-1020	B3F-1120	
		150 g	B3F-1022	B3F-1122	
		High-force: 260 g	B3F-1025	B3F-1125	
5.0 mm (7.5 mm pitch)	General-purpose: 100 g	—	B3F-1110		
Projected		7.3 mm	General-purpose: 100 g	B3F-1050	B3F-1150
			150 g	B3F-1052	B3F-1152
			High-force: 260 g	B3F-1055	B3F-1155
Vertical		3.15 mm	General-purpose: 100 g	—	B3F-3100
			150 g	—	B3F-3102
		High-force: 260 g	—	B3F-3105	
	3.85 mm	General-purpose: 100 g	—	B3F-3120	
		150 g	—	B3F-3122	
		High-force: 260 g	—	B3F-3125	
Projected		6.15 mm	General-purpose: 100 g	—	B3F-3150
			150 g	—	B3F-3152
			High-force: 260 g	—	B3F-3155

Important Note: Switches cannot be water-washed.

■ B3F-1□□□-G

6 x 6 mm type with Gold Plating

Type	Plunger	Switch height	Form of shipment operating force	Model	
				Without ground terminal	With ground terminal
				Bags (100 Switches)	
6 x 6 mm switches with gold plating		4.3 mm	180 g	B3F-1002-G	B3F-1102-G
		5.0 mm		B3F-1022-G	B3F-1122-G

Note: The minimum order is 100 Switches. Order in multiples of the minimum order.

■ B3F-4□□□, B3F-5□□□

12 x 12 mm type

Type	Plunger	Switch height	Operating force	Model	
				Without ground terminal	With ground terminal
				Bags	Bags
Standard		4.3 mm	General-purpose: 130 g	B3F-4000	B3F-4100
			High-force: 260 g	B3F-4005	B3F-4105
		7.3 mm	General-purpose: 130 g	B3F-4050	B3F-4150
			High-force: 260 g	B3F-4055	B3F-4155
Long service life		4.3 mm	General-purpose: 130 g	B3F-5000	B3F-5100
		7.3 mm		B3F-5050	B3F-5150
High reliability gold-plated contact		4.3 mm		B3F-5001	B3F-5101
		7.3 mm		B3F-5051	B3F-5151

Important Note: Switches cannot be water-washed.

■ B3F-6□□□□

**Taped Radial (Auto Insertion)
6 x 6 mm type**

Type	Plunger	Switch height	Operating force	Model	
				Without ground terminal	With ground terminal
B3F-6000	Flat 	4.3 mm	General-purpose: 100 g	B3F-6000	B3F-6100
			High-force: 150 g	B3F-6002	B3F-6102
	5.0 mm	General-purpose: 100 g	B3F-6020	B3F-6120	
		High-force: 150 g	B3F-6022	B3F-6122	
Projected 	7.3 mm	General-purpose: 100 g	B3F-6050	B3F-6150	
		High-force: 150 g	B3F-6052	B3F-6152	

Note: The above switches must be ordered in units of 1,000.

Important Note: Switches cannot be water-washed.

■ **Accessories**

See “B32” Tactile Switch Key Top data sheet for keycaps that fit projected plunger B3F models.

■ **Plunger Identification Tables**

Use these tables to determine tactile switch type by plunger color.

B3F-1□□□□/-3□□□□/-6□□□□

Plunger color	Operating force	Type
Ivory	100 g	B3F-1000, 1100, 1050, 1150, 3100, 3150, 6000, 6100, 6050, 6150
Black	100 g	B3F-1020, 1120, 1110, 3120, 6020, 6120
Yellow	150 g	B3F-1002, 1102, 1052, 1152, 3102, 3152, 6002, 6102, 6052, 6152
	180 g	B3F-1002-G, 1102-G
Gray	150 g	B3F-1022, 1122, 3122, 6022, 6122
	180 g	B3F-1022-G, 1122-G
Orange	260 g	B3F-1005, 1105, 1055, 1155, 3105, 3155, 6005, 6055
Pink	260 g	B3F-1025, 1125, 3125, 6025

B3F-4□□□□/-5□□□□

Plunger color	Operating force	Type
Ivory	130 g	B3F-4000, 4100, 4050, 4150
Yellow	260 g	B3F-4005, 4105, 4055, 4155
Blue	130 g	B3F-5000 Series

Specifications

■ Characteristics

	Part Number				
	B3F-1□□□ B3F-3□□□	B3F-4□□□	B3F-5□□□	B3F-6□□□	B3F-1□□□-G
Contact form	SPST-NO				
Switching capacity	1 to 50 mA, 5 to 24 VDC (resistive load)				100 μA to 50 mA, 5 to 24 VDC (resistive load)
Contact resistance	100 MΩ max. (rated: 1mA, 5VDC)				100 MΩ max. (rated: 100 μA, 5 VDC)
Insulation resistance	100 MΩ min. (at 250 VDC)				
Dielectric strength	500 VAC, 50/60 Hz for 1 minute				
Bounce time	5 ms max.				
Vibration resistance	Malfunction durability: 10 to 55 Hz, 1.5 mm double amplitude for 30 to 60 s				
Shock resistance	Mechanical durability: 1,000 m/s ² (approx. 100 G) Malfunction durability: 100 m/s ² (approx. 10 G)				
Ambient operating temperature	-25° to 70°C (at 60% RH max.) with no icing or condensation				
Ambient operating humidity	35% to 85% RH (at 5 to 35 °C)				
Weight	Approx. 0.25 g	Approx. 0.85 g		Approx. 0.25 g	

Note: Data shown are of initial value.

■ Life Expectancy

B3F-1000, B3F-3000, B3F-6000:
1,000,000 operations min (OF: 100gf) (B3F-1070: 500,000 operations min)
300,000 operations min (OF: 150 gf)
100,000 operations min (OF: 260gf)
B3F-G:
300,000 operations min (OF: 180gf)
B3F-4000:
3,000,000 operations min (OF: 130gf)
1,000,000 operations min (OF: 260gf)
B3F-5000:
10,000,000 operations min.

■ Operating Characteristics

Characteristics	Part Number							
	B3F-1□□□ / -3□□□			B3F-4□□□ / -5□□□		B3F-6□□□		B3F-1□□□-G
	General purpose type		High force type	General purpose type	High force type	General purpose type	High force type	General purpose type
Operating force (OF)	100 ± 30 g	150 ± 50 g	260 ± 70 gf	130 ± 50 g	260 ± 70 g	100 ± 30 g	150 ± 50 g	180 ± 50 g
Release force (RF) min.	20 g	50 g	50 gf	30 g	50 g	20 g	50 g	50 g
Pretravel (PT)	0.25 ^{+0.2} / _{-0.1} mm			0.3 ^{+0.2} / _{-0.1} mm		0.25 ^{+0.2} / _{-0.1} mm		

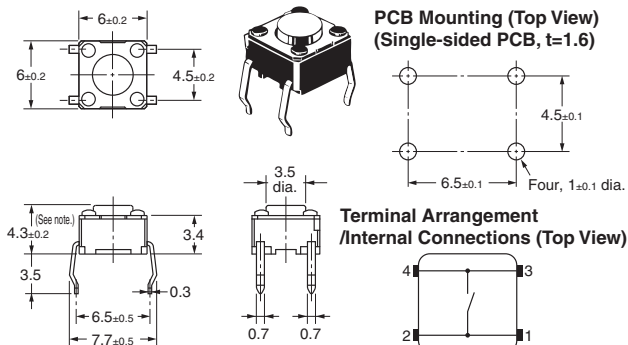
Dimensions

- Note:** 1. Unless otherwise specified, all units are in millimeters and a tolerance of ± 0.4 mm applies to all dimensions.
 2. Terminal numbers are not indicated on this switch. With the switch turned over so that the logo mark "OMRON" is visible on the upper part of the rear side of the switch base, the terminal on the right of the logo mark is numbered "1" and that on the bottom right is "3." Accordingly, two terminals on the left side are numbered "2" and "4" respectively.

6 x 6 mm Models

Standard, Flat Plunger Type (without Ground Terminal)

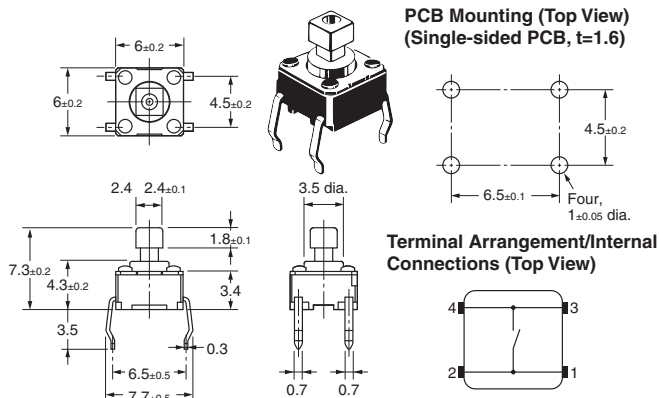
B3F-1000, B3F-1002, B3F-1005, B3F-1020*, B3F-1022*, B3F-1025*, B3F-1002-G, B3F-1022-G*



*The height of B3F-1020, B3F-1022, B3F-1025, and B3F-1026 is 5±0.2 mm.

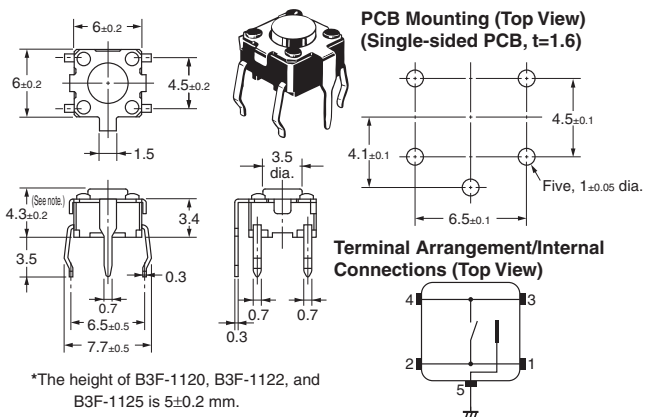
Standard, Projected Plunger Type (without Ground Terminal)

B3F-1050, B3F-1052, B3F-1055



Standard, Flat Plunger Type (with Ground Terminal, Pitch: 6.5 mm)

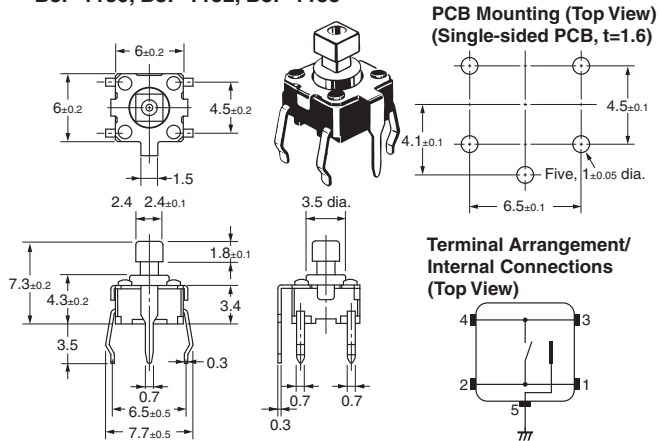
B3F-1100, B3F-1102, B3F-1105, B3F-1120*, B3F-1122*, B3F-1125*, B3F-1102-G, B3F-1122-G*



*The height of B3F-1120, B3F-1122, and B3F-1125 is 5±0.2 mm.

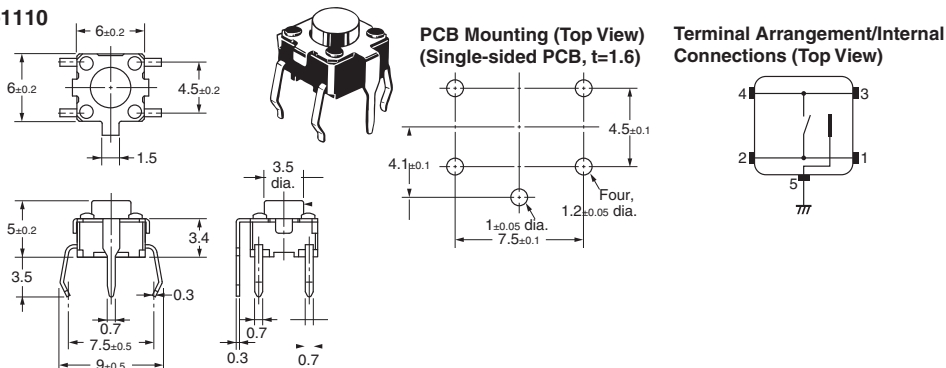
Standard, Projected Plunger Type (with Ground Terminal)

B3F-1150, B3F-1152, B3F-1155



Standard, Flat Plunger Type (with Ground Terminal, Pitch: 7.5 mm)

B3F-1110



Side-operated, Flat Plunger Type

B3F-3100, B3F-3102, B3F-3105



Side-operated, Projected Plunger Type

B3F-3150, B3F-3152, B3F-3155



Side-operated, Flat Plunger Type (Height: 3.85 mm)

B3F-3120, B3F-3122, B3F-3125



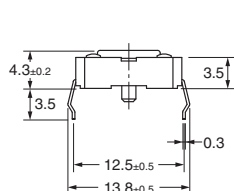
■ 12 x 12 mm Models

Standard, Long-life,
and High-reliability Models
Flat Plunger Type
(without Ground Terminal)

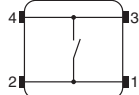
B3F-4000, B3F-4005,
B3F-5000, B3F-5001



PCB Mounting (Top View)
(Single-sided PCB, t=1.6)



Terminal Arrangement/
Internal Connections
(Top View)

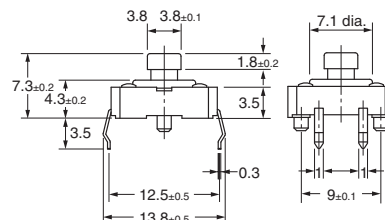


Standard, Long-life,
and High-reliability Models
Projected Plunger Type
(without Ground Terminal)

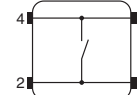
B3F-4050, B3F-4055,
B3F-5050, B3F-5051



PCB Mounting (Top View)
(Single-sided PCB, t=1.6)

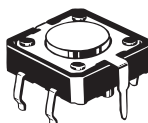


Terminal Arrangement/
Internal Connections
(Top View)

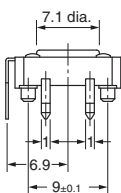
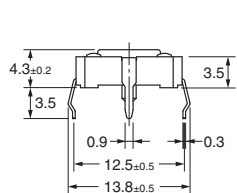
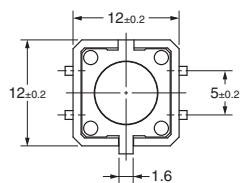


Standard, Long-life,
and High-reliability Models
Flat Plunger Type
(with Ground Terminal)

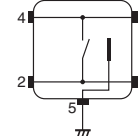
B3F-4100, B3F-4105,
B3F-5100, B3F-5101



PCB Mounting (Top View)
(Single-sided PCB, t=1.6)

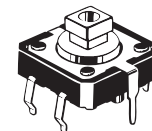


Terminal Arrangement/
Internal Connections
(Top View)

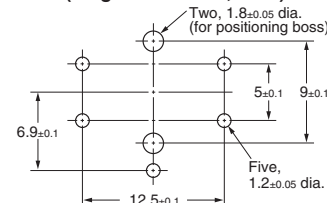
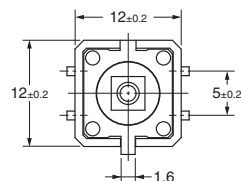


Standard, Long-life,
and High-reliability Models
Projected Plunger Type
(with Ground Terminal)

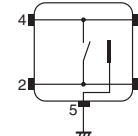
B3F-4150, B3F-4155,
B3F-5150, B3F-5151



PCB Mounting (Top View)
(Single-sided PCB, t=1.6)



Terminal Arrangement/
Internal Connections
(Top View)



■ 6 x 6 mm Radial Taped Models: Sold in units of 1,000 switches

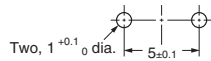
Note: Terminal numbers are not indicated on this switch. With the switch turned over so that the logo mark “OMRON” is visible on the upper part of the rear side of the switch base, the terminal on the top of the logo mark is numbered “1” and that on the bottom is “2.”

**Flat Plunger Type
(without Ground Terminal)
B3F-6000, B3F-6002**



Note: The tape is random between surface A and surface B.

**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**



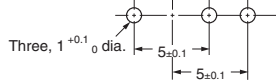
**Terminal Arrangement
/Internal Connections
(Top View)**



**Flat Plunger Type
(with Ground Terminal)
B3F-6100, B3F-6102**



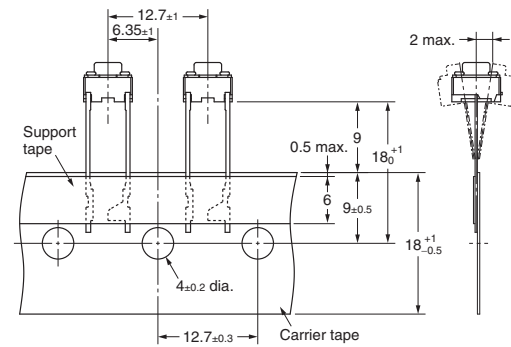
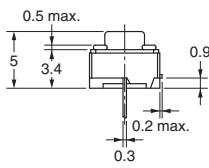
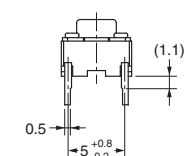
**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**



**Terminal Arrangement
/Internal Connections
(Top View)**

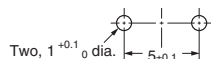


**Flat Plunger Type
(without Ground Terminal)
B3F-6020, B3F-6022**



Note: The tape is random between surface A and surface B.

**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**



**Terminal Arrangement
/Internal Connections
(Top View)**



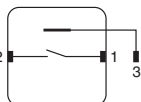
**Flat Plunger Type
(with Ground Terminal)
B3F-6120, B3F-6122**



**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**



**Terminal Arrangement
/Internal Connections
(Top View)**



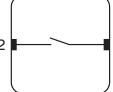
**Projected Plunger Type
(without Ground Terminal)
B3F-6050, B3F-6052**



**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**

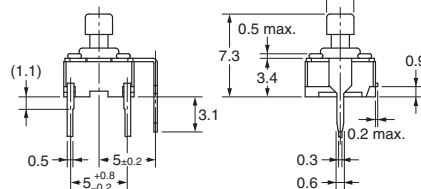
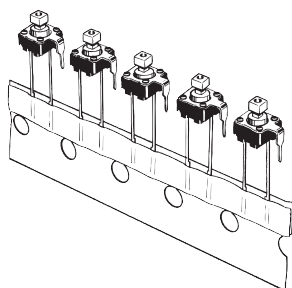


**Terminal Arrangement
/Internal Connections
(Top View)**



Note: The tape is random between surface A and surface B.

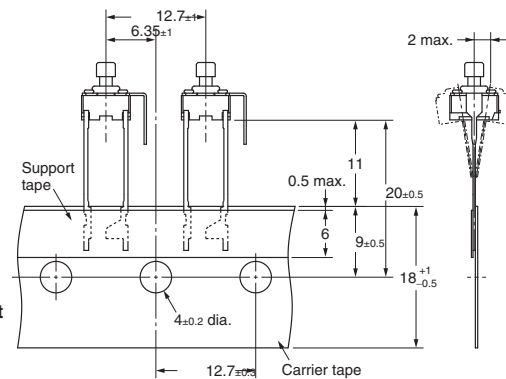
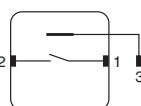
**Projected Plunger Type
(with Ground Terminal)
B3F-6150, B3F-6152**



**PCB Mounting
(Top View)
(Single-sided PCB, t=1.6)**



**Terminal Arrangement
/Internal Connections
(Top View)**



Hints on Correct Use

See the Tactile Switch User's Guide, "Tactile Switches - Technical Information" for information regarding processing and handling.

■ Taped Radial (Auto Insertion) Packaging

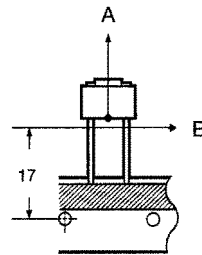
- Tactile switches packed on tape are placed into packing boxes as shown below.
- Number of switches per box: 1,000
- Tape may be drawn from the box either from the top or from the bottom.



■ Taping Strength

The tactile switches will not release from the tape when pulled in directions A and B at the following forces.

- A: 500 g
- B: 100 g



Precautions

Be sure to read the precautions common to all Tactile Switches, contained in the Technical User's Guide, "Tactile Switches, Technical Information" for correct use.

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 the time the purchase order is accepted by Seller. 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 billing.
- 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 or any claim related to pricing or other charges 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 Product/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.
- Prohibited Use:** 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 PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.
 - Motorized Vehicle Application:** USE OF ANY PRODUCT/S FOR A MOTORIZED VEHICLE APPLICATION MUST BE EXPRESSLY STATED IN THE SPECIFICATION BY SELLER.
 - Programmable Products:** Seller shall not be responsible for the Buyer's programming of a programmable Product.

IV. WARRANTY AND LIMITATION

- 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 MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT ALL OTHER WARRANTIES, NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS.
- 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 there shall be no liability for Seller or its affiliates unless Seller's analysis confirms that the Products were correctly 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.
- Limitation on Liability:** SELLER AND ITS AFFILIATES 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 OR ITS AFFILIATES EXCEED THE INDIVIDUAL PRICE OF THE PRODUCT ON WHICH LIABILITY IS ASSERTED.
- 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.

V. INFORMATION; ETC.

- Intellectual Property:** 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. 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.
- Property; Confidentiality:** Notwithstanding any charges to Buyer for engineering or tooling, all engineering and tooling shall remain the exclusive property of Seller. All information and materials 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.
- Performance Data:** Performance data is provided as a guide in determining suitability and does not constitute a warranty. It may represent the result of Seller's test conditions, and the users must correlate it to actual application requirements.
- Change In Specifications:** Product specifications and descriptions may be changed at any time based on improvements or other reasons. It is Seller's practice to change part numbers when published ratings or features are changed, or when significant engineering changes are made. However, some specifications of the Product may be changed without any notice.
- Errors And Omissions:** The information on Seller's website or in other documentation has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.
- Export Controls:** Buyer shall comply with all applicable laws, regulations and licenses regarding (a) export of the Products or information provided by Seller; (b) sale of Products to forbidden or other proscribed persons or organizations; (c) disclosure to non-citizens of regulated technology or information.

VI. MISCELLANEOUS

- Waiver:** No failure or delay by Seller in exercising any right and no course of dealing between Buyer and Seller shall operate as a waiver of rights by Seller.
- Assignment:** Buyer may not assign its rights hereunder without Seller's written consent.
- Law:** These Terms are governed by Illinois law (without regard to conflict of laws). Federal and state courts in Cook County, Illinois have exclusive jurisdiction for any dispute hereunder.
- Amendment:** These Terms constitute the entire agreement between Buyer and Seller relating to the Products, and no provision may be changed or waived unless in writing signed by the parties.
- Severability:** If any provision hereof is rendered ineffective or invalid, such provision shall not invalidate any other provision.

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1. **Suitability for Use.** Seller shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in Buyer's application or use of the Product. At Buyer's request, Seller will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases but the following is a non-exhaustive list of applications for which particular attention must be given:
 - (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.
2. **Programmable Products.** Seller shall not be responsible for the user's programming of a programmable product, or any consequence thereof.
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