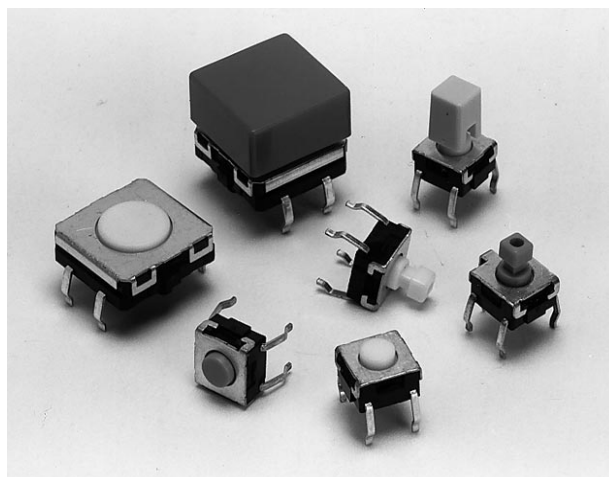


Mechanical Key Switch (Washable)

B3W

Sealed for Submersed Washing after Soldering

- Thin, compact construction in both 12 x 12 mm and 6 x 6 mm sizes.
- Snap-action contact construction for positive tactile feedback.
- Available with ground terminals for protection against static electricity.
- Sealed construction also provides high reliability in dusty environments.



Ordering Information

Type	Plunger	Operating force (OF)		Without ground terminal		With ground terminal	
				Bags*	Sticks*	Bags*	Sticks*
6 x 6 mm B3W-1□□□	Flat type	General purpose	1.57 N (160 gf)	B3W-1000	B3W-1000S	B3W-1100	B3W-1100S
		High-force	2.25 N (230 gf)	B3W-1002	B3W-1002S	B3W-1102	B3W-1102S
	Projected type	General purpose	1.57 N (160 gf)	B3W-1050	B3W-1050S	B3W-1150	B3W-1150S
		High-force	2.25 N (230 gf)	B3W-1052	B3W-1052S	B3W-1152	B3W-1152S
12 x 12 mm B3W-4□□□	Flat type	General purpose	1.96 N (200 gf)	B3W-4000	B3W-4000S	B3W-4100	B3W-4100S
		High-force	3.43 N (350 gf)	B3W-4005	B3W-4005S	B3W-4105	B3W-4105S
	Projected type	General purpose	1.96 N (200 gf)	B3W-4050	B3W-4050S	B3W-4150	B3W-4150S
		High-force	3.43 N (350 gf)	B3W-4055	B3W-4055S	B3W-4155	B3W-4155S

Plunger type	Flat	Projected	Flat (vertical)	Projected (vertical)
Appearance				

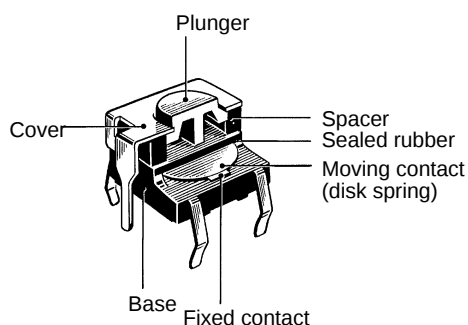
* The number of switches per stick/bag is as follows:

Size	Without ground	With ground
6 x 6 mm	80/stick, 100/bag	75/stick, 100/bag
12 x 12 mm	45/stick, 100/bag	40/stick, 100/bag

Accessories (Order Separately)

Special keytops are available for projected switch models. See page 27 (Product B32).

Structure



Specifications

■ Ratings

Switching capacity	5 to 24 VDC, 1 to 50 mA (resistive load)
Insulation voltage	30 VDC

■ Characteristics

Contact configuration	SPST-NO
Contact resistance	100 mΩ max. (Rated 5 VDC, 1 mA)
Insulation resistance	100 MΩ min. (at 250 VDC)
Dielectric strength	500 VAC, 50/60 Hz for 1 min
Bounce time	5 ms max.
Vibration resistance	Malfunction: 10 to 55 Hz, 1.5 mm double amplitude
Shock resistance	Destruction: 1,000 m/s ² min. (Approx. 100 G min.) Malfunction: 100 m/s ² min. (Approx. 10 G min.)
Life expectancy	B3W-1000: General purpose: 1,000,000 operations min. High-force: 300,000 operations min. B3W-4000: General purpose: 3,000,000 operations min. High-force: 1,000,000 operations min.
Ambient temperature	-25°C to 70°C (with no icing)
Ambient humidity	35% to 85%
Weight	6 x 6 mm: approx. 0.3 g, 12 x 12: approx. 1.00 g

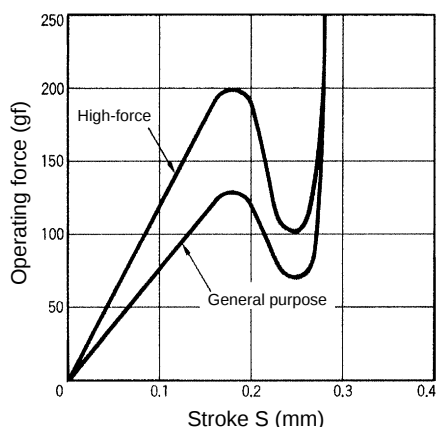
■ Operating Characteristics

Item	B3W-1000		B3W-4000	
	General purpose	High-force	General purpose	High-force
Operating force (OF)	1.57 N (160 gf max.)	2.25 N (230 gf max.)	1.96 N (200 gf max.)	3.43 N (350 gf max.)
Reset force (RF min.)	0.2 N (20 gf max.)	0.49 N (50 gf)	0.29 N (30 gf)	0.49 N (50 gf)
Pretravel (PT)	0.25 ^{+0.2} / _{-0.1} mm		0.3 ^{+0.2} / _{-0.1} mm	

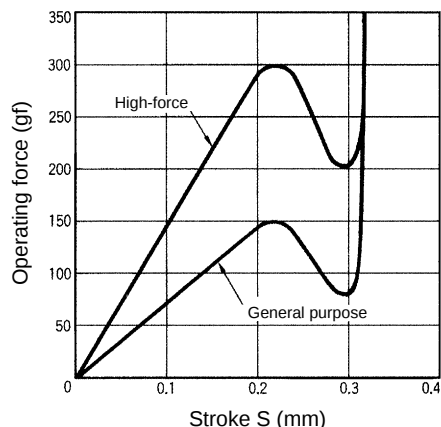
Engineering Data

Operating Force vs. Stroke (Typical)

B3W-1□□□



B3W-4□□□



Dimensions

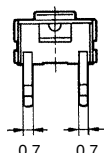
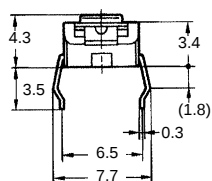
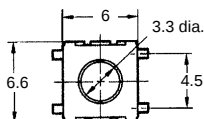
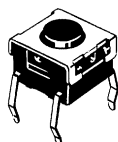
Note: 1. Unless otherwise specified, a tolerance of $\pm 0.4\text{mm}$ applies to all dimensions.

2. No terminal numbers appear on the switches. To orient a switch in the "bottom view" position, turn it so that the terminals are on the up and down sides and the word OMRON is right-side up.

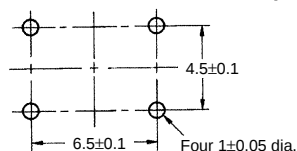
 (Bottom view)

■ 6 x 6 mm Models

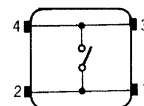
Flat Plunger Type (without Ground Terminal) B3W-1000, -1002



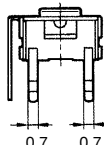
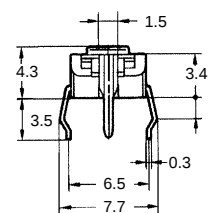
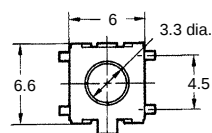
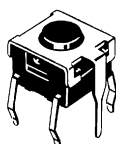
PCB Mounting (Top View)



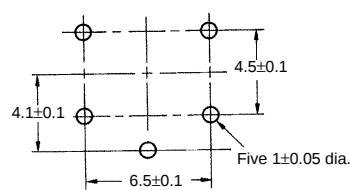
Terminal Arrangement /Internal Connections (Top View)



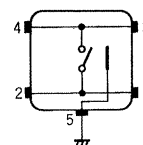
Flat Plunger Type (with Ground Terminal) B3W-1100, -1102



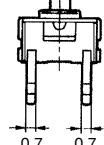
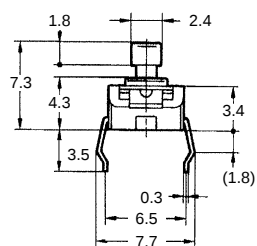
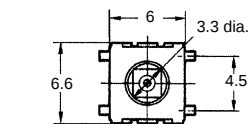
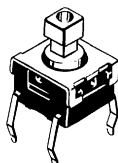
PCB Mounting (Top View)



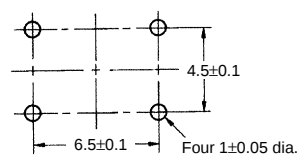
Terminal Arrangement /Internal Connections (Top View)



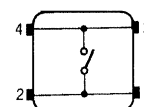
Projected Plunger Type (without Ground Terminal) B3W-1050, -1052



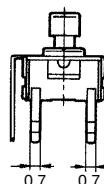
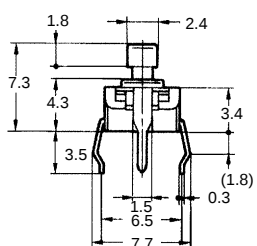
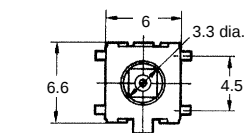
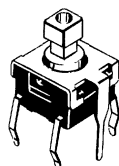
PCB Mounting (Top View)



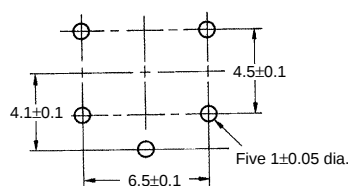
Terminal Arrangement /Internal Connections (Top View)



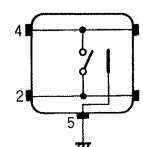
Projected Plunger Type (with Ground Terminal) B3W-1150, -1152



PCB Mounting (Top View)

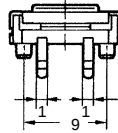
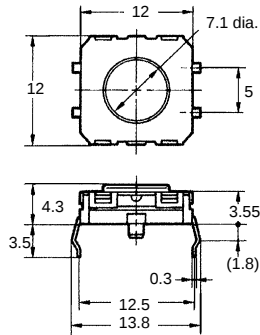
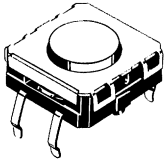


Terminal Arrangement /Internal Connections (Top View)

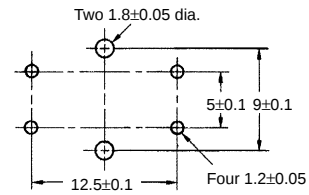


■ 12 x 12 mm Models

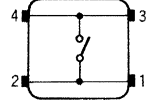
**Flat Plunger Type
(without Ground Terminal)
B3W-4000, -4005**



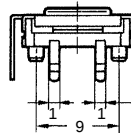
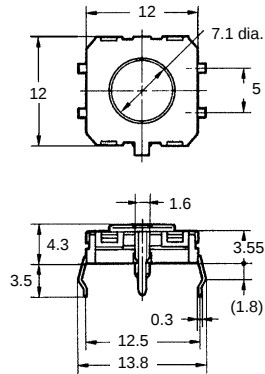
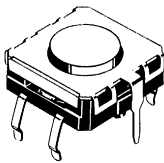
**PCB Mounting
(Top View)**



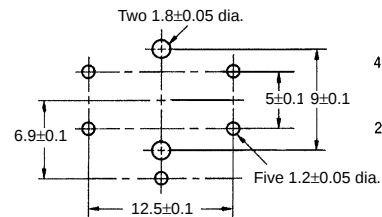
**Terminal Arrangement
/Internal Connections
(Top View)**



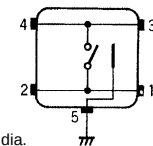
**Flat Plunger Type
(with Ground Terminal)
B3W-4100, -4105**



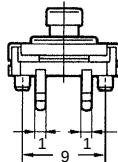
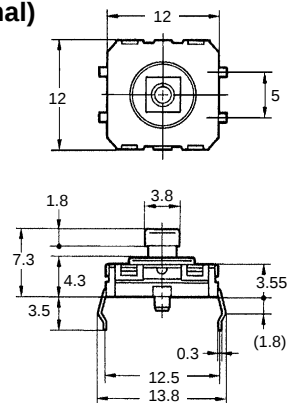
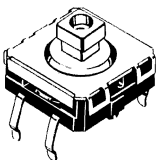
**PCB Mounting
(Top View)**



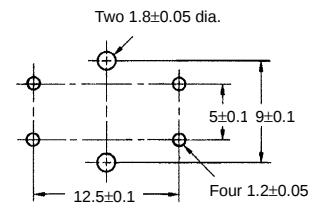
**Terminal Arrangement
/Internal Connections
(Top View)**



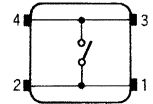
**Projected Plunger Type
(without Ground Terminal)
B3W-4050, -4055**



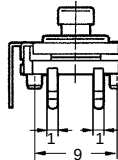
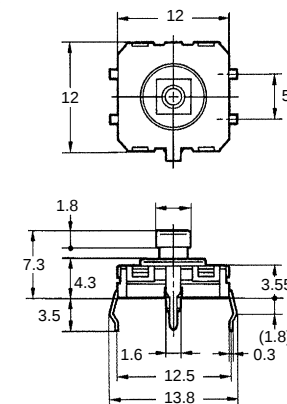
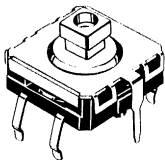
**PCB Mounting
(Top View)**



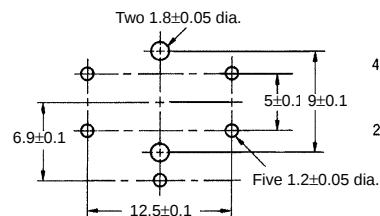
**Terminal Arrangement
/Internal Connections
(Top View)**



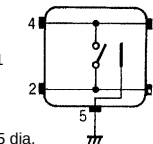
**Projected Plunger Type
(with Ground Terminal)
B3W-4150, -4155**



**PCB Mounting
(Top View)**



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



Precautions

- Do not apply additional force to the plunger once it has stopped moving.
 - Do not allow flux or flux foam to penetrate onto the component side of the PCB.
 - Use a single-sided PCB with a thickness of 1.6 mm. The switches may be damaged due to instability or heat from soldering if other PCBs (other thickness or through holes) are used. If it is necessary to use another PCB, test the compatibility and processing in advance.
 - Do not repeatedly press the plunger off-centre or from an acute angle.
- B3W Switches are designed to allow submersed washing after soldering. When washing, please follow the guidelines given as follows:
 1. Clean with alcohol solvents. Do not use chlorine solvents or water.
 2. When using ultrasonic cleaning in 2- or 3-tank systems, do not clean for more than 1 minute at a time or for more than 3 minutes total.
 3. Do not apply external force to the switch during washing.
 4. Do not wash immediately after soldering. Allow components to stand for at least 3 minutes before washing if possible.
 5. Solder at $260^{\circ}\pm 5^{\circ}\text{C}$ and within 2 tries.
 6. The switch cannot be used where subject to direct contact with water.