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PRODUCT: B3W-9 Switches
TYPE: Product Release (Internal)

B3W-9 Illuminated Tactile Switches Offer Dust-tight Switch Mechanism with Multiple Lighting Configurations, including a Special “Tri-color” Version.

Omron’s B3W-9 family of illuminated tactile switches provides a variety of options to simplify your prospect’s design while maximizing design flexibility. Offered with a diverse assortment of colors, these switches are suitable for use in applications that require visual feedback as confirmation of a product’s operational status.



Key Features

- Uses industry standard B3W switching mechanism
- 2 standard operating forces - - 160gf and 230gf
- 10 mm x 10 mm keycap surface and 11mm height, saves space.
- Keycaps use a unique diffusion panel, for uniform brightness across the surface
- Various keycaps are available; Transparent, same as LED Color or “Milky White”/Translucent
- One or Two LED’s per switch
- Multiple LED colors available; Red, Yellow, Blue, Green and Bright Green.
- Red LED + Green LED models are available, for two color operation.
- “Tri-Color” operation is achieved when the Red + Green version is used with the “Milky White” keycap. (Red + Green illuminated at the same time, beneath the white keycap = Orange)

Target Markets / Applications

The B3W-9 will have suitable user-interface applications within equipment and controls that are present within the Test and Measurement, Office Automation, Amusement and Automation Controls markets. Although the switches are not sealed versus liquid, applications within the Industrial Controls and Medical Markets may also be found.

Benefits and Product Positioning

B3W-9 Illuminated Tactile Switches are built around the industry standard B3W switching mechanism, so the switch portion of its PCB footprint matches the standard, non-lighted version of the B3W. As a result, board designers only need to accommodate the LED terminals in their PCB drill plane and CADD models. Furthermore, the switches are offered with one or two, same-color LED’s, allowing project engineers to balance cost versus brightness. Varied degrees of illumination can be achieved when these LED’s are paired with the designer’s choice of matching color, transparent or ‘milky white’ translucent keycaps. Additionally, the B3W-9 is offered with a special version that incorporates one red and one green LED for two color operation. If used with the white keycap, this version allows for “Tri-color” operation; illuminating the red and green LED’s simultaneously produces orange. Uniform brightness across the surface of the keycap is achieved through the use of a unique diffusion panel that’s integrated into each keycap.

Competitive Information

Illuminated Tactile Switches are offered by a multitude of domestic and international competitors, including C&K, Solico/Mec, NKK, E-Switch, CIT, Knitter, Diptronics, Canal Electronics and Salecom. These switches vary in size and features, so that virtually none of them are identical, drop-in replacements, for each other**. Some are as large as 20mm x 20mm (NKK's "JL") while others are as small as 4mm x 6mm. For many of these, keycaps are offered as add-on products, in addition to being pre-assembled.



Comparison of Square / round actuator and keycap versions:

Manufacturer	Omron	C&K		NKK	CIT
Model	B3W-9	K5AT	K5V	JB	CL1200**
Available Colors Single LED	Red, Yellow, Blue, Green, Bright Green	Red, Yellow, Blue, Green, White, Orange	Red, Yellow, Blue, Green, White, Orange	Red, Yellow, Green	None, Red, Yellow, Blue, Green. "Bright" versions of each are available.)
Dual LED's available (Matching Color)	Yes. (Red + Green version also available.)	No	Yes (Red+Green and Yellow+Green, only)	No	Yes Red, Yellow, Blue. (Bright versions NOT available)
Tri-Color Operation	Yes (Red+Green used with White Cap)	No	No	No	No
Sealed status	Dust Proof Mechanism	Dust protection and Flux Tight	Dust protection and Flux Tight	Rubber Seal, IP64	None
Keycap pre-assembled	Yes	No	Yes	Yes	Yes
Keycap style	<ul style="list-style-type: none"> • Transparent • Colored • Milky White. 	None (Circular actuator)	Clear, only (Circular actuator, 1.2mm stroke)	Multiple versions and colors, with legends.	Round or Square with / without LED hole
Operating Force (gram-force)	160 or 230	400	400	170 or 260	160
Expected Life (Min.)	1M (160gf Type) 300k (230gf Type)	100k	25k	5M	100k
PCB Terminal	Through-hole	SMT	Solder Terminal (Panel Mount)	Through-Hole	Through-Hole
Operating Temperature Range	-25 to 70C	-40 to 125C	-40 – 85C	-25 – 70C	-40 – 85C
Packaging	Box, 300 pcs	Reel, 900 pcs	Box, 300 pcs (60 pcs/tray)	----	----
Size (mm) (LxWxH)	10 x 10 x 11	8 x 8.4 x 6.1 (Switch Base)	9 x 9 x 8.15 (Above panel) 9.5 (Depth below panel)	12 x 12 x 11.2 12 x 12 x 14.7	7.5 x 7.5 x 8.4 (Square cap) 8 mm Diameter (Round cap)

** This version is probably private branded for CIT and others. Similar switches, with matching form-factor (the exception to what's written above) and lower operating temperature range of -25 – 70C, are offered by several other manufacturers, including;

E-Switch = TL1240

Canal Electronics (Taiwan) = TS

SalesCom (Taiwan) = SPL6. (An SMT Version)

Diptronics = TL-6 / TLL-6

Switchtech Enterprises (Taiwan) = TS

Solico Mec (Multimec) = TP1194 / TP1193

Rectangular SMT Competition

Knitter Switch, CIT, and Diptronics offer a 6.8mm x 4.1mm x 2.5mm (L x W x H) surface mount tactile switch, with two LED's. Their products appear to be identical, matching each other in form, fit and options. LED Colors for this switch include Red, Green, Orange, White and Blue. These LED's can be mixed / matched within the switch. Keycaps aren't available, expected life = 50k operations, Operating Force = 160 gf and operating Temp Range is -20 – 70C. (-40 – 85C for CIT's version.)

Knitter Switch = TSL-3W

CIT = NL series

Diptronics = TML-3.