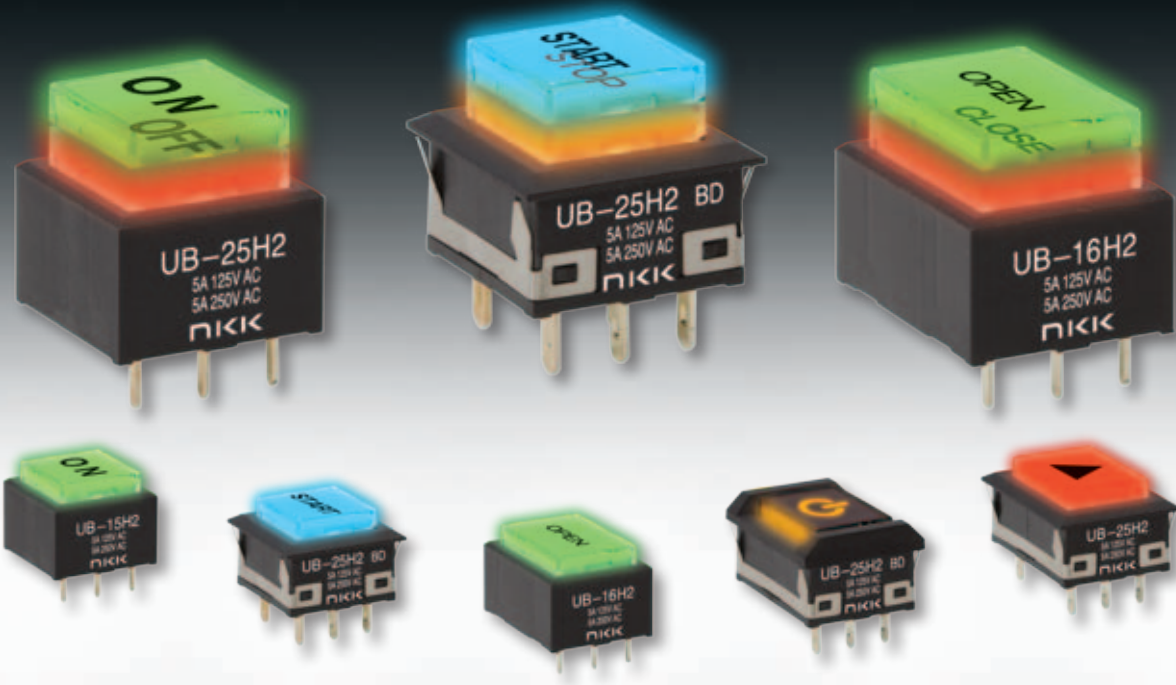


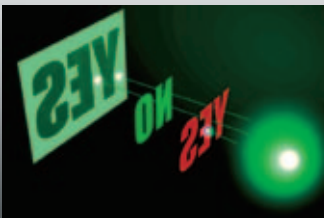
Contact No. 218

# New Bicolor Alternating Legends

UB Series



Green LED Illumination



Red LED Illumination



Blue LED Illumination



Amber LED Illumination



# Distinctive Characteristics

New bicolors red/green and amber/blue with alternating standard or custom legends. Super bright LED provides brilliant uniform illumination.

Bright or super bright LEDs (an integral part of the switch) of red, amber, green, blue, or white, in full face or spot illumination plus square or rectangular models.

Small behind panel dimension for snap-in mounting in tight spaces.

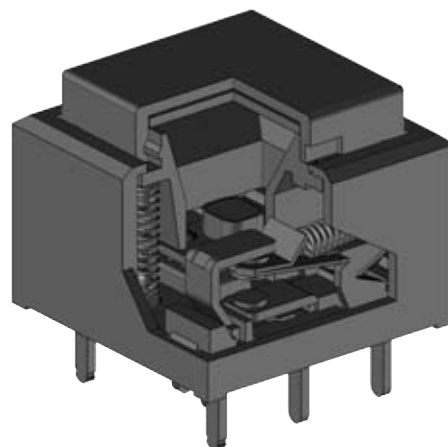
Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break characteristic limits arcing and prolongs electrical life.

Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

The contact utilizes a microswitch structure, providing smooth operation with long strokes.


Nonilluminated pushbuttons and matching indicators available.


UL recognized and CSA certified models can be specified .



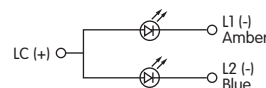
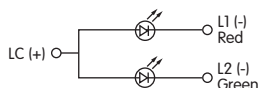
The electrical specifications shown are determined at a basic temperature of 25°C. The LED is an integral part of switch and is not available separately.

The LED circuit is isolated and requires an external power source. Polarity marks are on bottom of switch. If the source voltage exceeds the rated voltage, a ballast resistor is required.

	Super Bright Bicolor		
	Red	Green	Unit
Maximum Forward Current $I_{FM}$	30*	30*	mA
Typical Forward Current $I_F$	20	20	mA
Forward Voltage $V_F$	2.3	3.2	V
Maximum Reverse Voltage $V_{RM}$	4	4	V
Current Reduction Rate Above 25°C $\Delta I_F$	0.33	0.33	mA/°C
Ambient Temperature Range	-25° ~ +50		°C

	Super Bright Bicolor		
	Amber	Blue	Unit
Maximum Forward Current $I_{FM}$	30	30	mA
Typical Forward Current $I_F$	20	20	mA
Forward Voltage $V_F$	2.1	3.0	V
Maximum Reverse Voltage $V_{RM}$	4	4	V
Current Reduction Rate Above 25°C $\Delta I_F$	0.33	0.33	mA/°C
Ambient Temperature Range	-25° ~ +50		°C

\* The value is for single illumination of red or green. If both colors are illuminated, the value shall be applied to the sum of each current.



## Bicolor LED Illumination Paired with Alternating Legends

### Legends Change with New Super Bright Bicolors

#### Extensive Variety

New filter and wider array of illumination colors, indication, and product series.

**Bicolor:** New Red/Green and Amber/Blue

**Indication:** 10 standard options for legend text, with countless possibilities for custom orders

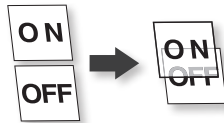
**Series:** UB Switches and Indicators

**Display Variation:** As many as 280 bicolor alternating legend variations

#### Efficient Management of Space

One switch can now replace the two previously required to display both ON and OFF.

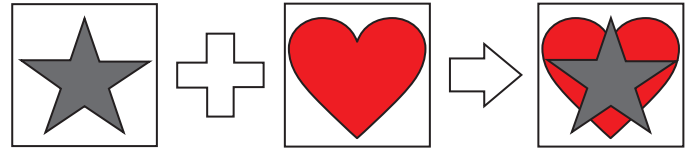
Enables miniaturization of equipment and preservation of panel space.



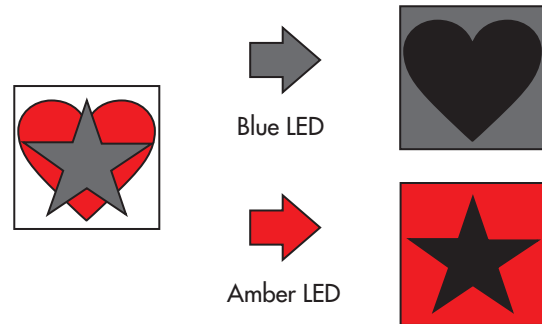
#### Behind the Scenes

Both LEDs installed in the switch have an individual wavelength of illumination depending on the LED color. The alternating legend film material has a specific characteristic that can absorb a certain range of the wavelength. For example, with the red/green bicolor LED, the material that absorbs the red color wavelength and the green color wavelength overlap one another

and changes the legends on the cap. NKK's bicolor alternating legends use this method to create several patterns corresponding to the switch illumination color.

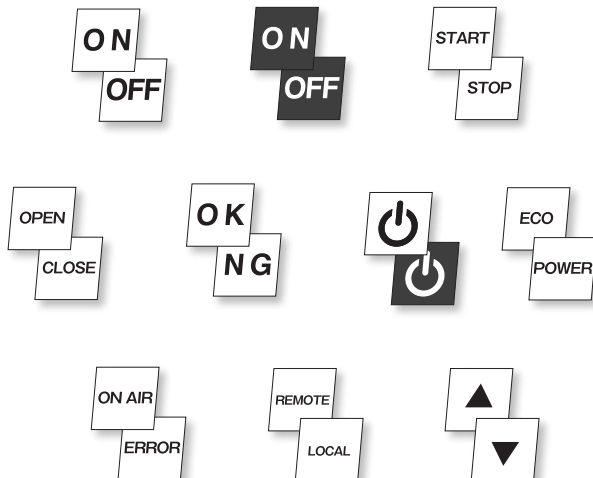


When two types of color filter patterns are layered together, the two patterns will overlap if there is no white light source illuminating the filter from behind, or there is no irradiation (transmission, reflection of outside light).

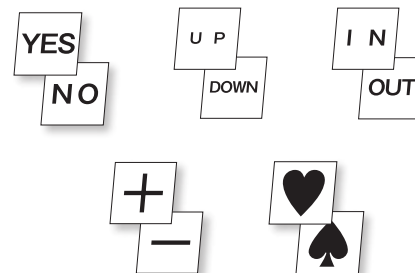


Each LED color is irradiated onto the above overlapping image. If the LED emission wavelength and the permeability of each pattern match, the overlapping pattern can be fractioned.

#### Standard Alternating Legends

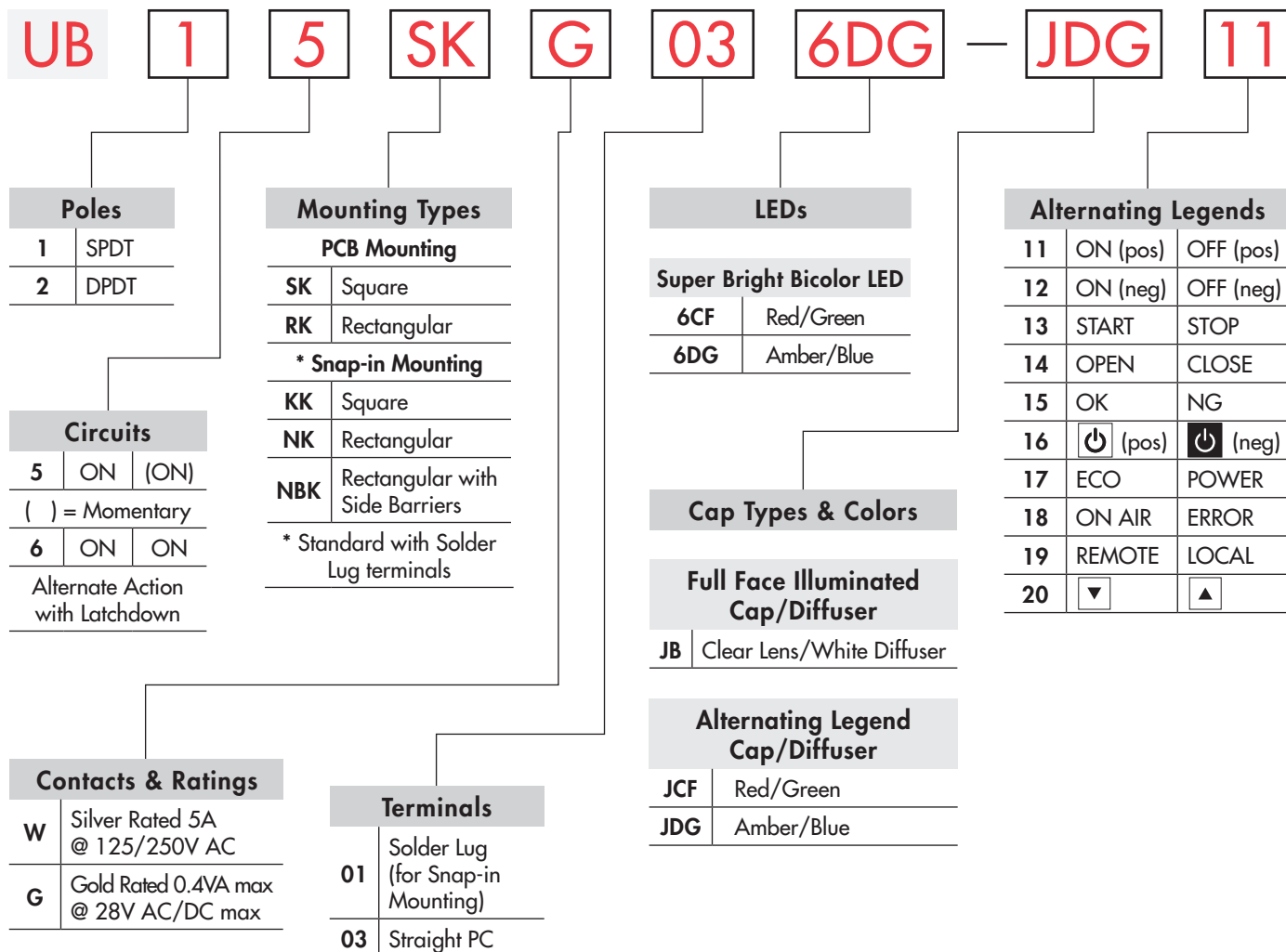


#### Examples of Custom Alternating Legends



Contact NKK Switches for expert assistance with your standard or custom legends. Experience bicolor alternating legend operations by clicking on the images of the switches. Visit our website: <http://www.nkk.com>

### TYPICAL SWITCH ORDERING EXAMPLE

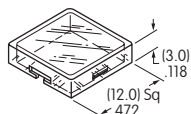


### CAP TYPES & COLOR COMBINATIONS

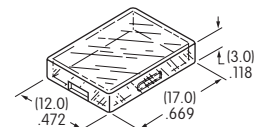
#### Full Face Illuminated Caps for Super Bright Bicolor LED

**JB**

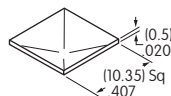
AT4074 Square Lens



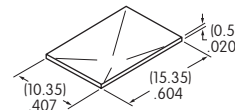
AT4117 Rectangular Lens



AT4188 Square Diffuser



AT4189 Rectangular Diffuser



Lens & Diffuser Material: Polycarbonate

Lens Finish: Glossy

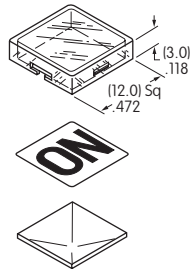
Diffuser Finish: Textured

**TYPICAL INDICATOR ORDERING EXAMPLE**

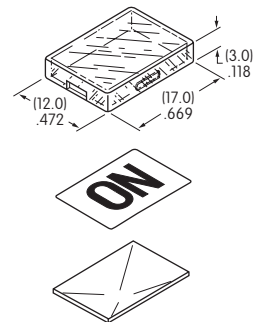
<b>UB</b>	<b>01</b>	<b>K</b>	<b>W03</b>	<b>6DG</b>	<b>—</b>	<b>JDG</b>	<b>11</b>																														
<b>Mounting Types</b>		<b>Housing</b>		<b>Cap Types &amp; Colors</b>		<b>Alternating Legends</b>																															
<b>PCB Mounting</b>		K   Black		<b>Full Face Illuminated Cap</b>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">11</td><td style="width: 10%;">ON (pos)</td><td style="width: 10%;">OFF (pos)</td></tr> <tr> <td>12</td><td>ON (neg)</td><td>OFF (neg)</td></tr> <tr> <td>13</td><td>START</td><td>STOP</td></tr> <tr> <td>14</td><td>OPEN</td><td>CLOSE</td></tr> <tr> <td>15</td><td>OK</td><td>NG</td></tr> <tr> <td>16</td><td> (pos)</td><td> (neg)</td></tr> <tr> <td>17</td><td>ECO</td><td>POWER</td></tr> <tr> <td>18</td><td>ON AIR</td><td>ERROR</td></tr> <tr> <td>19</td><td>REMOTE</td><td>LOCAL</td></tr> <tr> <td>20</td><td></td><td></td></tr> </table>		11	ON (pos)	OFF (pos)	12	ON (neg)	OFF (neg)	13	START	STOP	14	OPEN	CLOSE	15	OK	NG	16	(pos)	(neg)	17	ECO	POWER	18	ON AIR	ERROR	19	REMOTE	LOCAL	20		
11	ON (pos)	OFF (pos)																																			
12	ON (neg)	OFF (neg)																																			
13	START	STOP																																			
14	OPEN	CLOSE																																			
15	OK	NG																																			
16	(pos)	(neg)																																			
17	ECO	POWER																																			
18	ON AIR	ERROR																																			
19	REMOTE	LOCAL																																			
20																																					
01   Square 03   Rectangular		<b>Terminals</b>		<b>Bicolor Alternating Legend Cap/Diffuser for Square or Rectangular</b>																																	
* <b>Snap-in Mounting</b>		W01   Silver Solder Lug (for Snap-in Mounting) W03   Silver Straight PC (for PCB Mounting)		JB   Clear Lens/White Diffuser																																	
04   Square 06   Rectangular 06B   Rectangular with Side Barriers		<b>LEDS</b>		JCF   Red/Green JDG   Amber/Blue																																	
* Standard with Solder Lug terminals		<b>Super Bright Bicolor LED</b>																																			
		6CF   Red/Green 6DG   Amber/Blue																																			

**Alternating Legend Caps for Super Bright Bicolor LED**

- JCF JDG  
**AT4074 12.0mm Square Flat Cap**
- AT9450 Square Legend Insert**
- AT4188 Square Diffuser**



- JCF JDG  
**AT4117 12.0mm x 17.0mm Rectangular Flat Cap**
- AT9451 Rectangular Legend Insert**
- AT4189 Rectangular Diffuser**



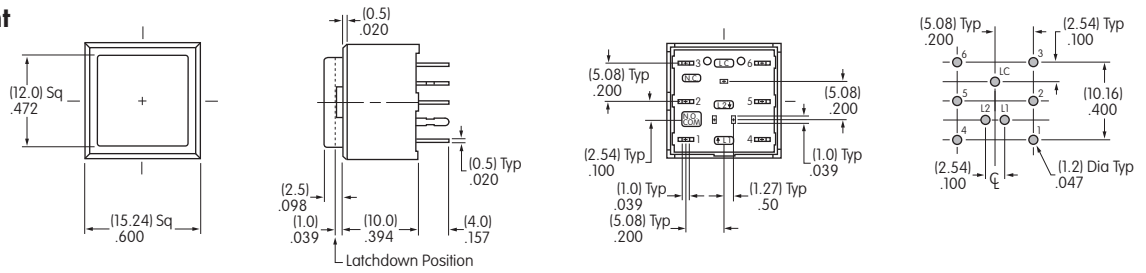
Lens & Diffuser Material: Polycarbonate    Legend Insert Material: Polyethylene Terephthalate (PET)  
 Lens Finish: Glossy    Diffuser Finish: Textured

Square Alternating Legends				Rectangular Alternating Legends			
Color	Part Number	Color	Part Number	Color	Part Number	Color	Part Number
Red/Green	AT9450CF11	Amber/Blue	AT9450DG11	Red/Green	AT9451CF11	Amber/Blue	AT9451DG11
	AT9450CF12		AT9450DG12		AT9451CF12		AT9451DG12
	AT9450CF13		AT9450DG13		AT9451CF13		AT9451DG13
	AT9450CF14		AT9450DG14		AT9451CF14		AT9451DG14
	AT9450CF15		AT9450DG15		AT9451CF15		AT9451DG15
	AT9450CF16		AT9450DG16		AT9451CF16		AT9451DG16
	AT9450CF17		AT9450DG17		AT9451CF17		AT9451DG17
	AT9450CF18		AT9450DG18		AT9451CF18		AT9451DG18
	AT9450CF19		AT9450DG19		AT9451CF19		AT9451DG19
	AT9450CF20		AT9450DG20		AT9451CF20		AT9451DG20

See UB Ordering Tables for Alternating Legend that corresponds with last 2 digits of part numbers.

### TYPICAL SWITCH DIMENSIONS

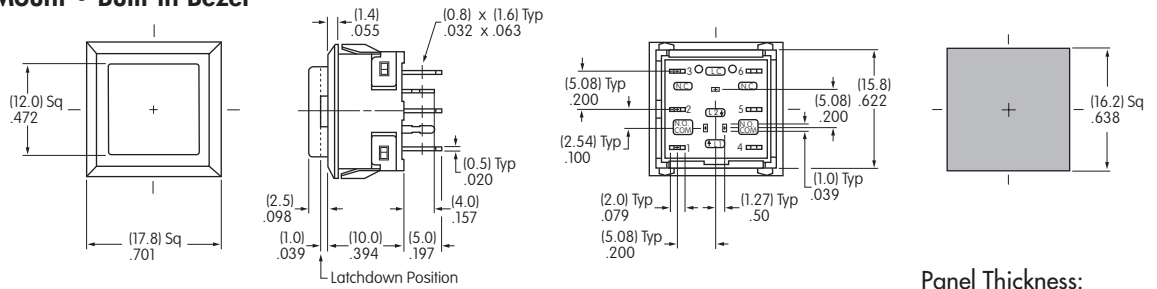
#### Square • PCB Mount



UB25SKG036DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

#### Square • Snap-in Mount • Built-in Bezel

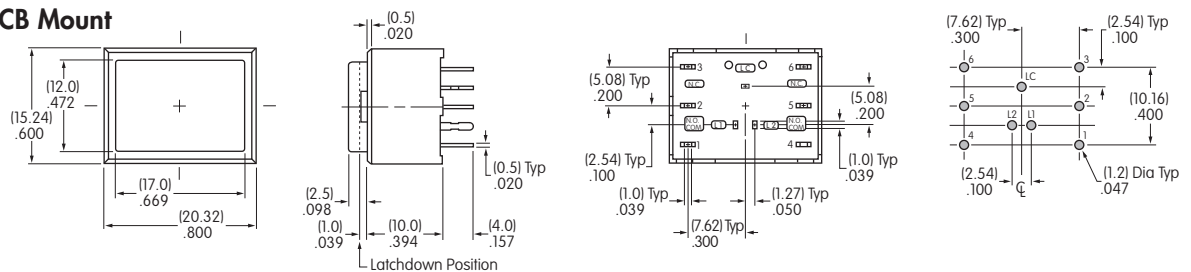


UB25KKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

Panel Thickness:  
(1.0 ~ 3.2mm) .039 ~ .126"

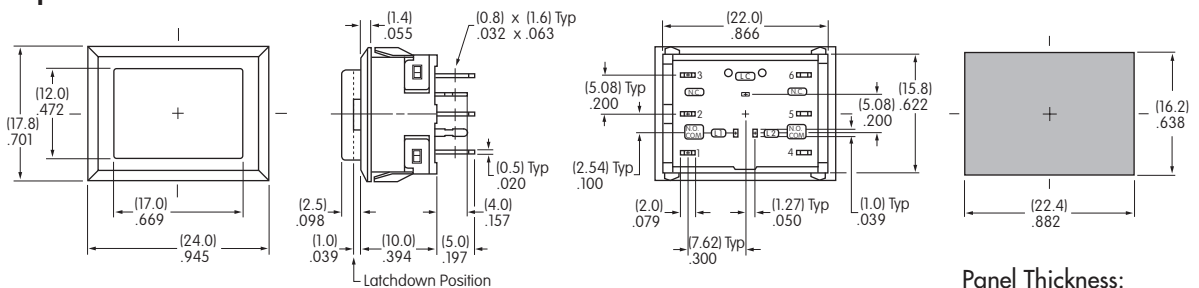
#### Rectangular • PCB Mount



UB25RKG036DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

#### Rectangular • Snap-in Mount • Built-in Bezel

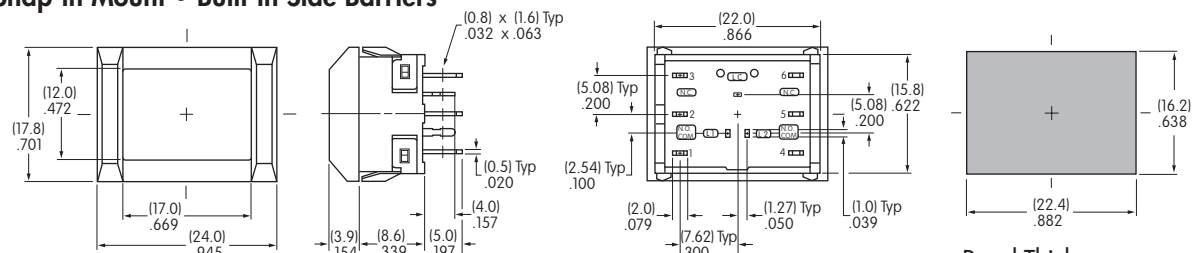


UB26NKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

Panel Thickness:  
(1.0 ~ 3.2mm) .039 ~ .126"

#### Rectangular • Snap-in Mount • Built-in Side Barriers



UB26NBKW016DG-JDG11

Single pole models do not have terminals 4, 5, & 6.

Panel Thickness:  
(1.0 ~ 3.2mm) .039 ~ .126"



### STANDARD ALTERNATING LEGENDS

Super Bright LED: Red/Green



Super Bright LED: Amber/Blue



### IMPRESSIVE ARRAY OF BICOLOR ALTERNATING LEDS

SERIES	Super Bright Bicolor LEDs in Amber/Blue or Red/Green					
KP01						
KP02						
NP01						
UB						
UB2						

Specifications are subject to change. Contact factory for latest information.

# NKK SWITCHES

Nihon Kaiheiki Ind. Co., Ltd.

<http://www.nkk.com> E-mail: [overseas@nikkai.co.jp](mailto:overseas@nikkai.co.jp)

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