

Contact No. 217

New Bicolor Alternating Legends

KP01 & KP02, NP01 & UB2 Series



KP01 & KP02 SERIES



NP01 SERIES



UB2 SERIES

Blue LED Illumination



Amber LED Illumination



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: Red/Green and new Amber/Blue

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

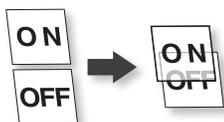
Series: KP01 & KP02, NP01, UB2

Display Variation: As many as 240 bicolor alternating legend variations

Efficient Management of Space

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

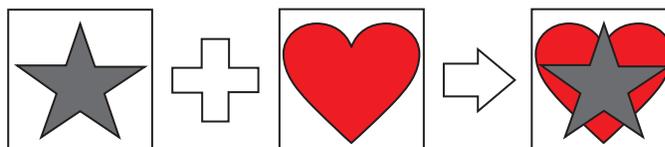
Enables miniaturization of equipment and preservation of panel space.



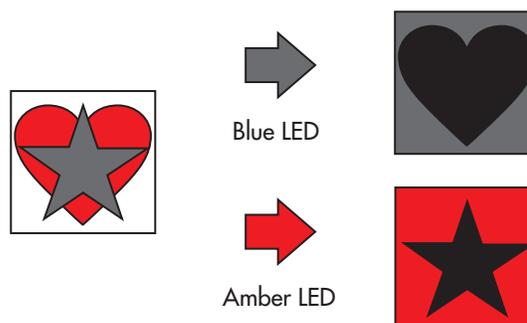
Behind the Scenes

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.

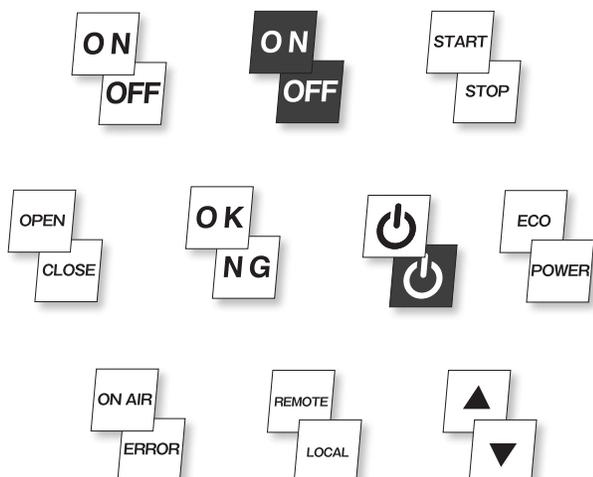


When two types of color filter patterns are layered together, the two patterns will overlap if there is no white light source illuminating the filter from behind, or there is no irradiation (transmission, reflection of outside light).

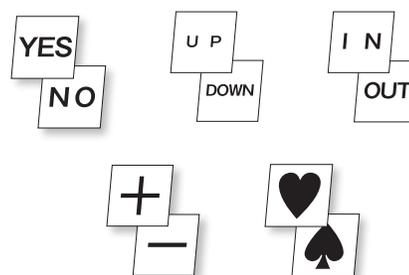


Each LED color is irradiated onto the above overlapping image. If the LED emission wavelength and the permeability of each pattern match, the overlapping pattern can be fractioned.

Standard Alternating Legends



Examples of Custom Alternating Legends



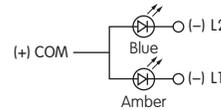
Contact NKK Switches for expert assistance with your standard or custom legends. Experience bicolor alternating legend operations by clicking on the images of the switches. Visit our website: <http://www.nkk.com>

Three Series Share New Super Bright Bicolors

Series KP01 & KP02



Miniature audio/video pushbutton incorporates a metallic pin rail that accentuates silent, smooth operation. Unique actuation guide provides indications of circuit transfer. Tactile, nontactile, or tactile/audible choices. Superb switching resistance exceeds 5 million operations. Compact size with longer stroke options of 4.5mm for KP01, or 3.5mm for KP02. Light operability with an operating force of 1.6N.



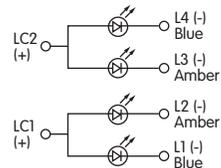
The electrical specifications shown are determined at a basic temperature of 25°C.

	ATTENTION ELECTROSTATIC SENSITIVE DEVICES	6DG		Unit
		Amber	Blue	
Minimum Luminous Intensity	I_V	204	113	mcd
Standard Luminous Intensity	I_V	340	188	mcd
Maximum Forward Current	I_{FM}	30	25	mA
Typical Forward Current	I_F	20	20	mA
Forward Voltage	V_F	2.1	3.2	V
Power Peak Dissipation	P_D	75	100	mW
Maximum Reverse Voltage	V_{RM}	4	4	V
Wavelength at Peak Emission	λ	589	470	nm
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.33	mA/°C
Ambient Temperature Range		-25 ~ +50		°C

Series NP01



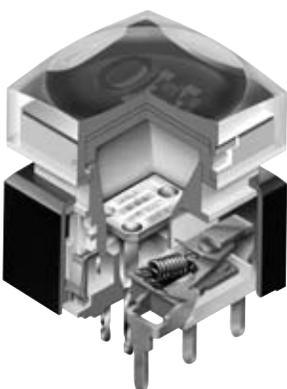
Subminiature, smooth-operation pushbutton, soft touch actuation achieved by mechanical silicon rubber structure. Entire cap is fully illuminated. Both standard (1.5N ±0.5N) or high (2.5N ±0.8N) operating force options. Compact design of only 12.5mm from PC board to top of cap.



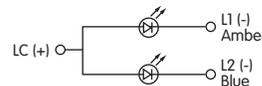
The electrical specifications shown are determined at a basic temperature of 25°C.

	ATTENTION ELECTROSTATIC SENSITIVE DEVICES	D	G	Unit
		Amber	Blue	
Maximum Forward Current	I_{FM}	30	30	mA
Typical Forward Current	I_F	20	20	mA
Forward Voltage	V_F	2.0	3.2	V
Maximum Reverse Voltage	V_{RM}	5	5	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.40	mA/°C
Ambient Temperature Range		-25 ~ +50		°C

Series UB2



Compact miniature pushbutton has two-point pressure that insures secure lock structure. A hook pin that locks the cap is held using an elastic plate. By holding cap from both above and below, a stable lock results that resists vibration and damage from impact. Latchdown mechanism, independent of switching mechanism, affords outstanding stability and reliability plus visible and tactile indication of circuit status. Light operability in addition to long stroke of 2.3mm.

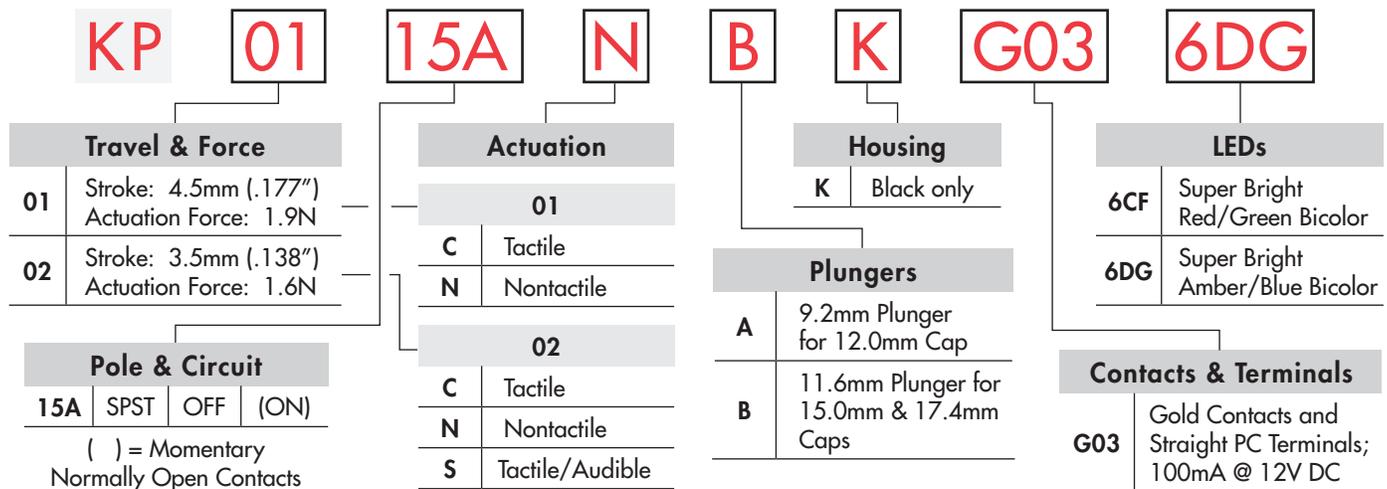


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	ATTENTION ELECTROSTATIC SENSITIVE DEVICES	6DG		Unit
		Amber	Blue	
Maximum Forward Current	I_{FM}	30	30	mA
Typical Forward Current	I_F	15	15	mA
Forward Voltage	V_F	2.0	2.8	V
Maximum Reverse Voltage	V_{RM}	4	4	V
Current Reduction Rate Above 25°C	ΔI_F	0.33	0.33	mA/°C
Ambient Temperature Range		-25 ~ +50		°C

For KP01, KP02, NP01 & UB2 Series, LEDs are an integral part of the switch and not available separately. LED circuit is isolated and requires an external power source. If source voltage exceeds rated voltage, a ballast resistor is required.

TYPICAL SWITCH

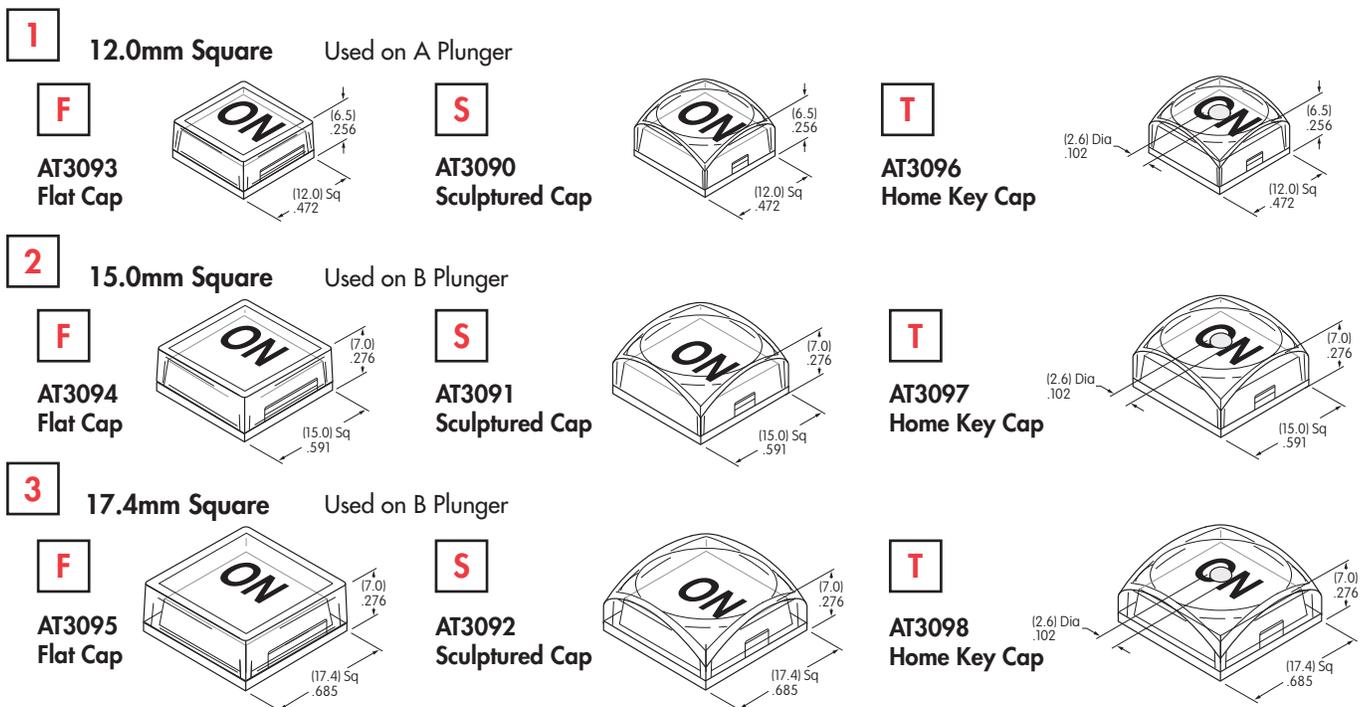


Part Numbers for KP Alternating Legends

Color	Cap Size	Flat Cap	Sculptured Cap	Home Key Cap
		Part Number	Part Number	Part Number
Red/Green	12mm Square	AT3093CF11 ~ AT3093CF20	AT3090CF11 ~ AT3090CF20	AT3096CF11 ~ AT3096CF20
	15mm Square	AT3094CF11 ~ AT3094CF20	AT3091CF11 ~ AT3091CF20	AT3097CF11 ~ AT3097CF20
	17.4mm Square	AT3095CF11 ~ AT3095CF20	AT3092CF11 ~ AT3092CF20	AT3098CF11 ~ AT3098CF20
Amber/Blue	12mm Square	AT3093DG11 ~ AT3093DG20	AT3090DG11 ~ AT3090DG20	AT3096DG11 ~ AT3096DG20
	15mm Square	AT3094DG11 ~ AT3094DG20	AT3091DG11 ~ AT3091DG20	AT3097DG11 ~ AT3097DG20
	17.4mm Square	AT3095DG11 ~ AT3095DG20	AT3092DG11 ~ AT3092DG20	AT3098DG11 ~ AT3098DG20

See KP Ordering Table for Alternating Legend that corresponds with last 2 digits of part number.

CAP TYPES FOR KP01 & KP02



Materials & Finishes: Lens - Polycarbonate with glossy finish; Diffuser - Polycarbonate with textured finish

ORDERING EXAMPLE

2	S	JDG	11																																																		
Cap Sizes	Cap Types	Cap Colors	Alternating Legends																																																		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;">1</td><td>12.0mm Square</td></tr> <tr><td>2</td><td>15.0mm Square</td></tr> <tr><td>3</td><td>17.4mm Square</td></tr> </table>	1	12.0mm Square	2	15.0mm Square	3	17.4mm Square	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;">F</td><td>Flat</td></tr> <tr><td>S</td><td>Sculptured</td></tr> <tr><td>T</td><td>Home Key</td></tr> </table>	F	Flat	S	Sculptured	T	Home Key	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;">JB</td><td>Clear Lens & White Diffuser</td></tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><th colspan="2">Bicolor Alternating Legend Caps</th></tr> <tr><td>JCF</td><td>Red/Green</td></tr> <tr><td>JDG</td><td>Amber/Blue</td></tr> </table>	JB	Clear Lens & White Diffuser	Bicolor Alternating Legend Caps		JCF	Red/Green	JDG	Amber/Blue	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 5%;">11</td><td>ON (pos)</td><td>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		
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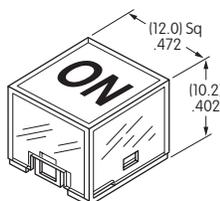
TYPICAL SWITCH ORDERING EXAMPLE

NP01	15	H	G03	L	DG	JDG	11																																																													
Pole & Circuit	Contacts & Terminals	Operating Force	LEDs	Illumination	Cap Types & Colors	Alternating Legends																																																														
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							Packaging																																																													
							No Code	Partitioned Tray, Any Quantity (With or without caps installed)																																																												
							S	Stick-Tube 50 Pieces/Stick (For switch body only; caps packaged separately)																																																												

CAP FOR NP01

AT3023 12.0mm Square Flat Cap

Material: Polycarbonate Resin

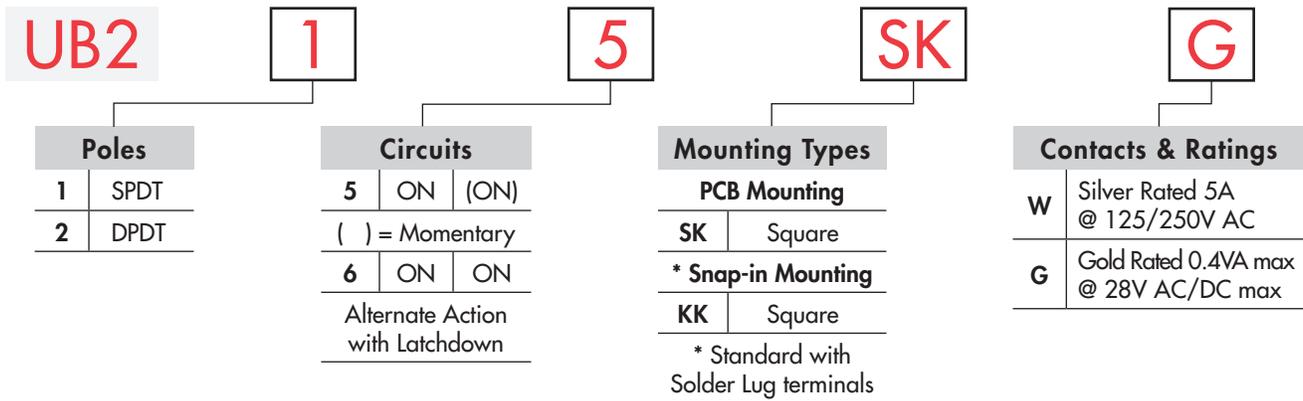


Part Numbers for NP01 Alternating Legends

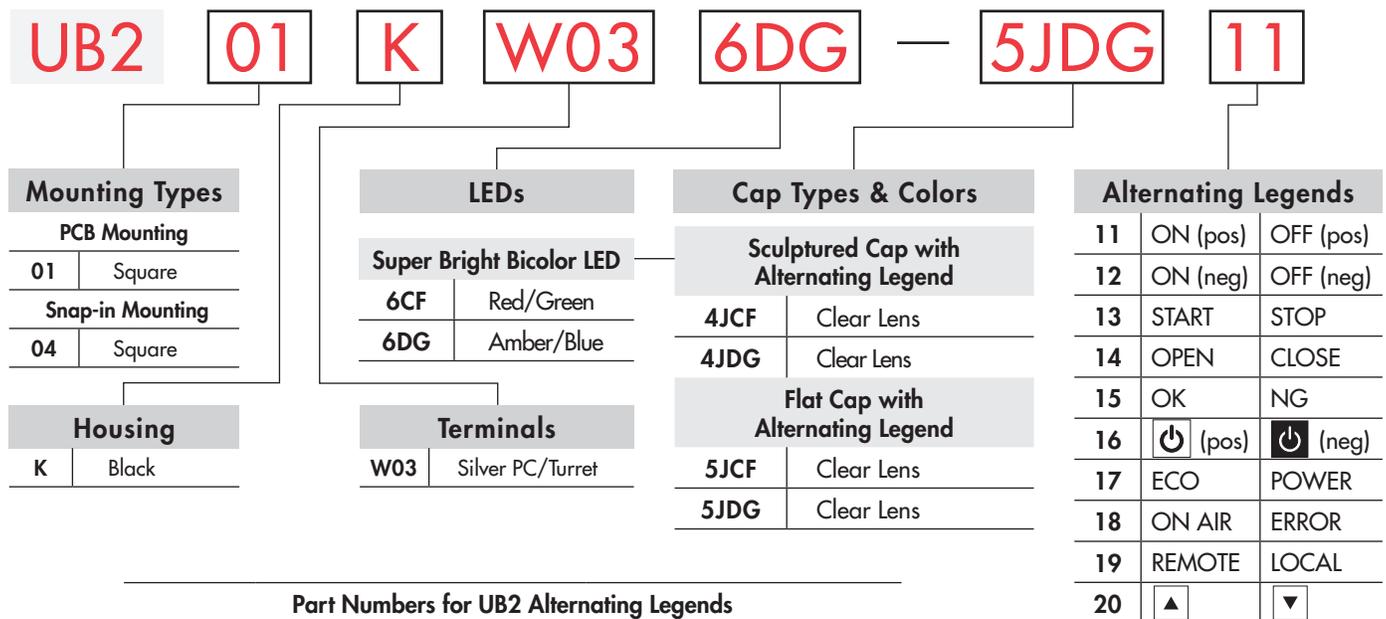
Color	Part Number
Red/Green	AT3023CF11 ~ AT3023CF20
Amber/Blue	AT3023DG11 ~ AT3023DG20

See NP01 Ordering Table for Alternating Legend that corresponds with last 2 digits of part number.

TYPICAL SWITCH



TYPICAL ORDERING EXAMPLE



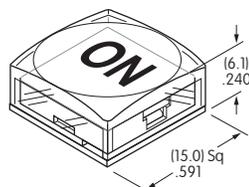
Part Numbers for UB2 Alternating Legends

Color	15mm Square Sculptured Cap	15mm Square Flat Cap
	Part Number	Part Number
Red/Green	AT3069CF11 ~ AT3069CF20	AT3070CF11 ~ AT3070CF20
Amber/Blue	AT3069DG11 ~ AT3069DG20	AT3070DG11 ~ AT3070DG20

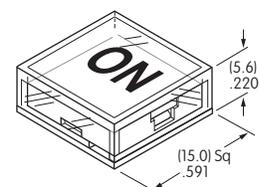
See NP01 Ordering Table for Alternating Legend that corresponds with last 2 digits of part number.

CAP TYPES FOR UB2

4J AT3069J 15.0mm Square Sculptured Cap



5J AT3070J 15.0mm Square Flat Cap



Material: Polycarbonate

Finish: Glossy

ORDERING EXAMPLE

03

6DG

5JDG

11

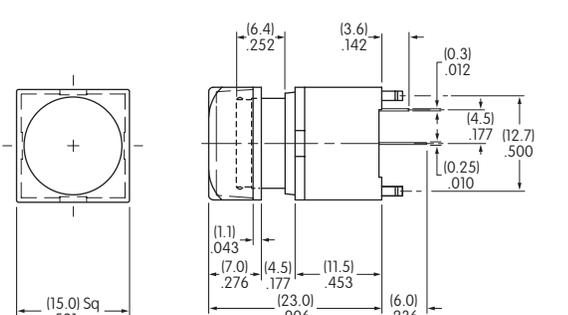
Terminals	
01	Solder Lug (for Snap-in Mounting)
03	Straight PC

LEDS	
Super Bright Bicolor LED	
6CF	Red/Green
6DG	Amber/Blue

Cap Types & Colors	
Sculptured Cap with Alternating Legend	
4JCF	Clear Lens
4JDG	Clear Lens
Flat Cap with Alternating Legend	
5JCF	Clear Lens
5JDG	Clear Lens

Alternating Legends		
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
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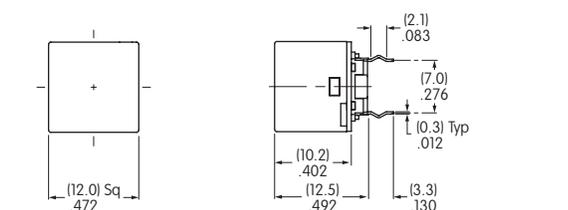
TYPICAL SWITCH DIMENSIONS FOR KP01 & KP02, NP01 & UB2



15.0mm Square Cap



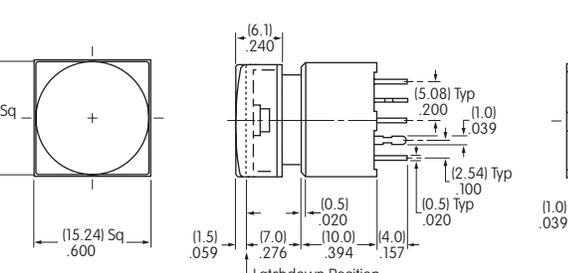
KP01-15ANBKG036DG-2SJB



12.0mm Square Cap



NP01-15HG03LF-JF



12.0mm Square Cap

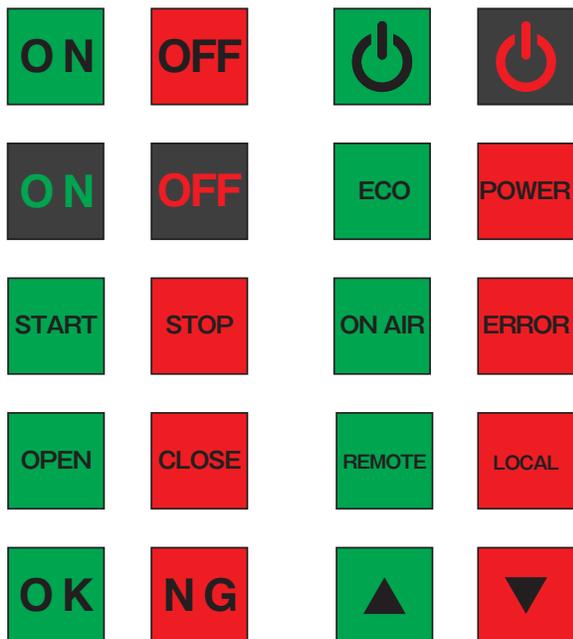


UB2-15SKG036DG-5JDG
UB2-26SKG036DG-5JDG

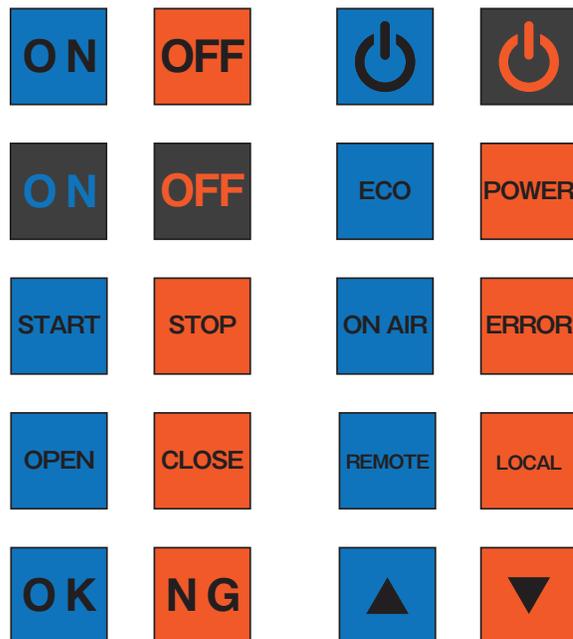
Single Pole
Double Pole

STANDARD ALTERNATING LEGENDS FOR KP01 & KP02, NP01 & UB2

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						

Orders for discontinued products will be accepted until March 22, 2013. See Contact 206 for alternative part numbers.
New products will be available July 5, 2013.

NKK SWITCHES

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