

## Part Number Description

**K16** - 1 2 3 4 5

Model	K16 Control Switch		
<b>1 Operator Type</b>	1 : Pilot Light 4 : 2 Position selector 7 : 3 Position key	2 : Momentary 5 : 3 Position selector 8 : Emergency Stop (nominal)	3 : Maintained 6 : 2 Position key 9 : Push mushroom
<b>2 Illumination &amp; Shape</b>	1 : Non - Illuminated Round 4 : Non-Illuminated Round(Ø20 Metal) 7 : Illumination Round (LED)	2 : Non - Illuminated Square 5 : Illuminated Round(Ø20 Flush Type) 8 : Illumination Square (LED)	3 : Non - Illuminated Rectangular 9 : Illumination Rectangular (LED)
<b>3 Contact Form</b>	0 : No Contact	1 : 1C	2 : 2C
<b>4 Color</b>	R : Red B : Blue	G : Green W : White	Y : Yellow K : Black
<b>5 Rated Voltage</b>	No mark : Standard (no voltage) 24VDC	6VDC 220VAC	12VDC
<b>Illuminated Buzzer</b>	K16-CZL (Round - continuous sound)	K16-BZL (Rectangular - continuous sound)	K16-CZL2 (Ø20 Flush Type - continuous sound)
<b>Non-Illuminated Buzzer</b>	K16-CZ (Round - continuous sound)	K16-BZ (Rectangular - continuous sound)	K16-CZ2 (Ø20 Flush Type - continuous sound)

⇒ Ø20 : Flush Type

# Control Switch

## K16 Series - Flush Type


### General Specification

Contact Ratings	Contact Form	1C, 2C			
	Contact Material	Ag Alloy (24K gold plate)			
	Maximum Switching Current	3A			
	Maximum Rated Voltage	250VAC, 110VDC			
	Rated Current	1A 24VDC / 120VAC			
		0.5A 250VAC			
	Minimum Switching Current	1mA 5VDC			
LED Module Ratings	Color	Red, Green, Yellow, Blue, White, Black			
	Rated Voltage	6VDC, 24VDC, 12VDC, 220VAC			
	Rated Current	Approx. 15mA			
	Life Cycle <sup>1)</sup>	50,000 hrs			
Buzzer Ratings	Tone	Continuous			
	Amplitude	80dB(phon) / 1m			
	Rated Voltage	24VDC			
	Rated Current	Approx. 15mA			
	Life Cycle	1,000 hours			
General Ratings	Contact Resistance	Max. 50mΩ			
	Insulation Resistance	Min. 100MΩ (500VDC)			
	Dielectric Strength	2,000VAC (1minute)			
	Vibration Resistance	5 - 55Hz dual amplitude : 0.75mm			
	Shock Resistance	Endurance : 500m/s <sup>2</sup> , Operation : 200m/s <sup>2</sup>			
	Life Cycle	Mechanical	Push button (release) : Min. 1,000,000		
			Selector, key : Min. 250,000		
			Others : Min. 100,000		
	Electrical	Maintained : Min 50,000 (frequency of on/off 1,200 times / hour)			
		Others : Min. 100,000			
	Ambient Temperature	-25°C - +55°C (with no icing or condensing )			
	Ambient Humidity	45% - 85%RH			
	Degree Of Protection	IP65 waterproof			
	Termination	#110 quick-fit / solder			
	Terminal Soldering Temperature	260°C 3sec			
Operating Characteristic	Operator Type	1C	2C	2 Position	3 Position
	OF	250g	450g	1,000g-cm	
	RF	30g		-	
	PT	2.5mm		-	-
	SP	-		90 degree	45 degree

1) After 50,000 hours of continuous lighting, the brightness decreases to 50%.

\* LED is to be used with DC only. Watch the polarity when using them.

## Products Selection

Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 20 Illuminated LED Pilot Light - Flush Type 	Round	-	Red	K16-150R	6VDC 12VDC 24VDC 220VAC
			Green	K16-150G	
			Blue	K16-150B	
			Yellow	K16-150Y	
			White	K16-150W	
			Black	K16-150K	
Ø 20 Momentary Non-Illuminated Push Button Switch - Flush Type 	Round	1C	Red	K16-241R	-
			Green	K16-241G	
			Blue	K16-241B	
			Yellow	K16-241Y	
			White	K16-241W	
		2C	Black	K16-241K	
			Red	K16-242R	-
			Green	K16-242G	
			Blue	K16-242B	
			Yellow	K16-242Y	
White	K16-242W				
Black	K16-242K				
Ø 20 Momentary Illuminated Push Button Switch - Flush Type 	Round	1C	Red	K16-251R	6VDC 12VDC 24VDC 220VAC
			Green	K16-251G	
			Blue	K16-251B	
			Yellow	K16-251Y	
			White	K16-251W	
		2C	Black	K16-251K	
			Red	K16-252R	6VDC 12VDC 24VDC 220VAC
			Green	K16-252G	
			Blue	K16-252B	
			Yellow	K16-252Y	
White	K16-252W				
Black	K16-252K				
Ø 20 Maintained Non-Illuminated Push Button Switch - Flush Type 	Round	1C	Red	K16-341R	-
			Green	K16-341G	
			Blue	K16-341B	
			Yellow	K16-341Y	
			White	K16-341W	
		2C	Black	K16-341K	
			Red	K16-342R	-
			Green	K16-342G	
			Blue	K16-342B	
			Yellow	K16-342Y	
White	K16-342W				
Black	K16-342K				
Ø 20 Maintained Illuminated Push Button Switch - Flush Type 	Round	1C	Red	K16-351R	6VDC 12VDC 24VDC 220VAC
			Green	K16-351G	
			Blue	K16-351B	
			Yellow	K16-351Y	
			White	K16-351W	
		2C	Black	K16-351K	
			Red	K16-352R	6VDC 12VDC 24VDC 220VAC
			Green	K16-352G	
			Blue	K16-352B	
			Yellow	K16-352Y	
White	K16-352W				
Black	K16-352K				

Rev. 2/14

Data subject may change without notice.

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Industrial Controls Catalog









II -IV - 11

**KACON**

# Control Switch

## K16 Series - Standard










### Products Selection

Operator Type	Shape	Contact Form	Color	Operator Function	Part Number	Rated Voltage
Ø 20 Non-Illuminated Selector Switch - Flush Type 	Round	1C	Black	-	K16-441K	-
		2C	Black	-	K16-442K	-
		2C	Black	-	K16-542K	-
Ø 20 Illuminated Selector Switch - Flush Type 	Round	1C	Red	-	K16-451R	6VDC
			Green		K16-451G	12VDC
			Blue		K16-451B	24VDC
			Yellow		K16-451Y	220VAC
			White		K16-451W	
		2C	Red	-	K16-452R	6VDC
			Green		K16-452G	12VDC
			Blue		K16-452B	24VDC
			Yellow		K16-452Y	220VAC
			White		K16-452W	
		2C	Red	-	K16-552R	6VDC
			Green		K16-552G	12VDC
Blue	K16-552B		24VDC			
Yellow	K16-552Y		220VAC			
White	K16-552W					
Ø 20 Key Switch - Flush Type 	Round	1C			K16-641	-
		2C			K16-642	-
		2C			K16-742	-
Ø 20 Non-Illuminated Buzzer - Flush Type 	Round	-		-	K16-CZ2	24VDC
Ø 20 Illuminated Buzzer - Flush Type 	Round	-		-	K16-CZL2	24VDC















# Control Switch

## K16 Series

### Products Selection

Operator Type	Shape	Contact Form	Color	Part Number	Rated Voltage
Ø 16 Momentary Non-Illuminated Mushroom Push Button Switch 	Round	1C	Red	K16-911R	-
			Green	K16-911G	-
			Yellow	K16-911Y	-
Ø 16 Momentary Illuminated Mushroom Push Button Switch  	Round	1C	Red	K16-971R	6VDC
			Green	K16-971G	12VDC
			Yellow	K16-971Y	24VDC
			Red	K16-972R	220VAC
			Green	K16-972G	6VDC
			Yellow	K16-972Y	12VDC
	Square	1C	Red	K16-981R	24VDC
			Green	K16-981G	220VAC
			Yellow	K16-981Y	6VDC
			Red	K16-982R	12VDC
			Green	K16-982G	24VDC
			Yellow	K16-982Y	220VAC
Ø 16 Maintained Illuminated Mushroom Push Button Switch  	Round	1C	Red	K16-971RH	6VDC
			Green	K16-971GH	12VDC
			Yellow	K16-971YH	24VDC
			Red	K16-972RH	220VAC
			Green	K16-972GH	6VDC
			Yellow	K16-972YH	12VDC
	Square	1C	Red	K16-981RH	24VDC
			Green	K16-981GH	220VAC
			Yellow	K16-981YH	6VDC
			Red	K16-982RH	12VDC
			Green	K16-982GH	24VDC
			Yellow	K16-982YH	220VAC
Ø 16 Non-Illuminated Buzzer  	Round	-	-	K16-CZ	12VDC 24VDC
	Square	-	-	K16-BZ	12VDC 24VDC
Ø 16 Illuminated Buzzer  	Round	-	-	K16-CZL	24VDC
	Square	-	-	K16-BZL	24VDC

## Accessory

	Operator Type	Rated Voltage	Color	Part number
	220VAC Trans	220VAC	Black	K16-T1
		24V	Red Green Yellow White Blue	K16-S115R 24V K16-S115G 24V K16-S115Y 24V K16-S115W 24V K16-S115B 24V
	LED	12V	Red Green Yellow White Blue	K16-S115R 12V K16-S115G 12V K16-S115Y 12V K16-S115W 12V K16-S115B 12V
		6V	Red Green Yellow White Blue	K16-S115R 6V K16-S115G 6V K16-S115Y 6V K16-S115W 6V K16-S115B 6V
	Ø 22 Protection Cover (Ø 20 only)		Clear	T22-C
	Square Protection Cover - Box Type		Black Red Green Yellow	K16-S111 K16-S111R K16-S111G K16-S111Y
	Rectangular Protection Cover - Box Type		Black Red Green Yellow	K16-S112 K16-S112R K16-S112G K16-S112Y
	Square Protection Cover - Side Open / Spring Type		Black Red Green Yellow	K16-S221 K16-S221R K16-S221G K16-S221Y
	Rectangular Protection Cover - Side Open / Spring Type		Black Red Green Yellow	K16-S222 K16-S222R K16-S222G K16-S222Y
	Safety Guard (Ø16 only)		Yellow	K16-G1
	Safety Guard - Emergency Stop (Ø16 only)		Yellow	K16-G2
	Ø16 Hole Cover (Ø16 only)		Black	K16-S117
	Mounting Ring Wrench		Black	K16-W1
	Bulb Remove Tool		Black	K16-LR1
	Socket(Soldering)		Black	K16-S113
	Socket(PCB)		Black	K16-S114

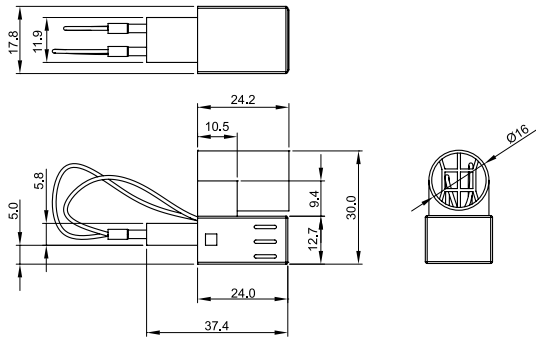
# Control Switch

## K16 Series

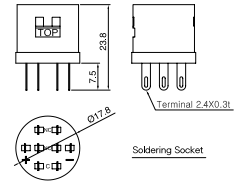
### Accessory

unit : mm

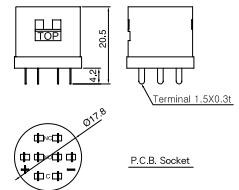
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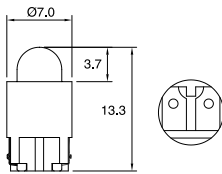
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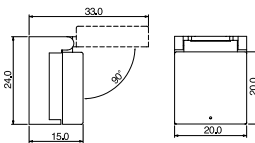
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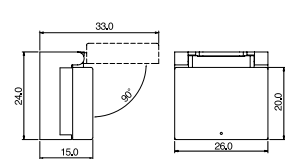
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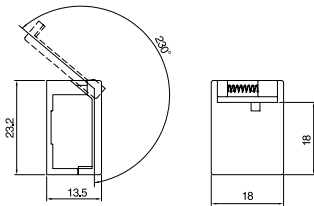
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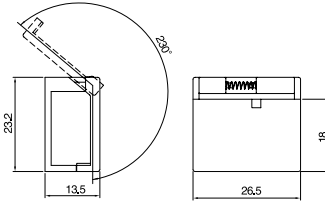
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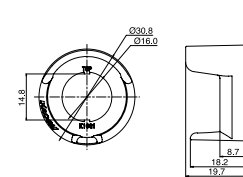
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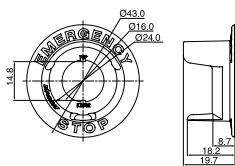
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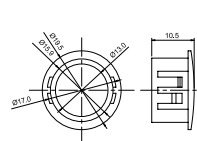
K16 - G1



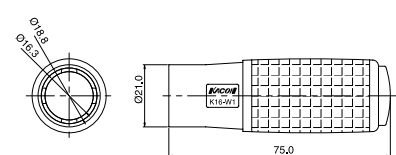
K16 - G2



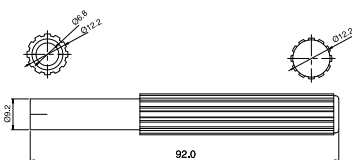
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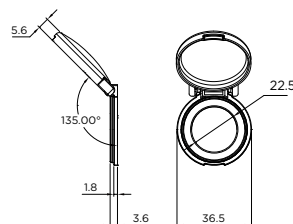
K16 - W1



K16 - LR1

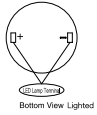


T22-C



## Wiring Diagram

Illuminated



1C



2C



Illuminated  
1C



Illuminated  
2C



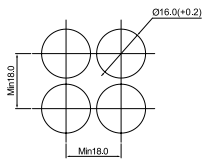
Buzzer



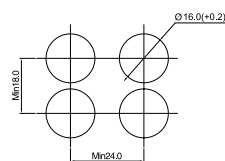
Non-polarity

## Panel Cut-Out

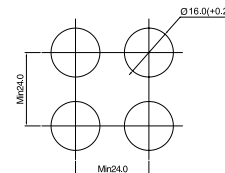
Round / Square (Ø16)



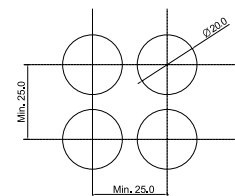
Rectangular (Ø16)



Emergency Stop / Mushroom (Ø16)



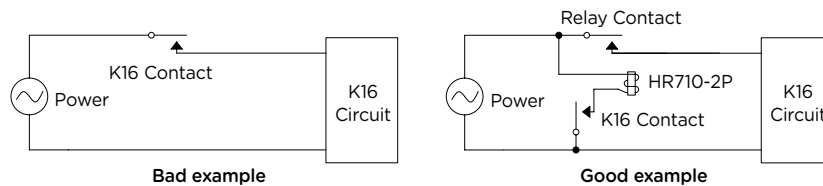
Round / Square (Ø20)



- Note. 1. When processing panels, determine the distance between holes considering the user's workability.  
 2. The hole processing dimension must be  $\text{Ø}16.0 \pm 0.2$  or  $\text{Ø}20.0 \pm 0.2$ .  
 (If the hole processing dimension is greater than the specified value, the product may not operate normally.)

## Caution

When using K16 small Control Switch as the power switch for the control unit, please follow the following instruction for longer product life span and reliability.



- If you are using a DC power source which is regulated from an AC source, the ripple of the DC power source should be within 10%.  
 ⇨ If the power source does not have a stable voltage, the life span of the LED will be considerably shortened.
- Do not use excessive force or strike the products, which could cause damages.  
 (Driving torque for fixing panels 0.6~1N·m or lower)
- When soldering the wires, excessive heat or extensive use of soldering equipment can distort the shape of the product, which may result in damages.)
- There is a built-in current limiting resistance in the product, so no more additional resistances are need to be connected.
- The brightness of LED could be reduced up to 50% after rated life span.
- K16-W1 : Do not tighten the fixing ring with an excessive force, because it may damage the product.
- K16-LR1 : 1. Insert K16-LR1 and pull it to separate the LED from the product.  
 2. Rotate and pull K16-LR1 to mount the LED on the product..

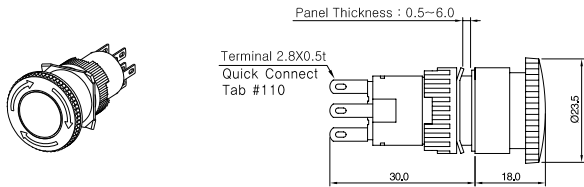
※ The specification and the material of the products can be changed without notice for the improvement of the quality.



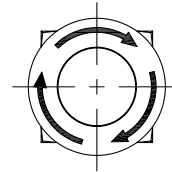
## Dimension

unit : mm

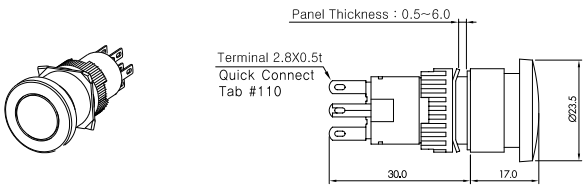
### Emergency Stop Switch



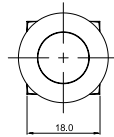
Round



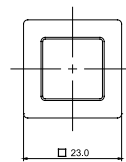
### Mushroom Push Button Switch



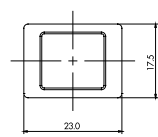
Round



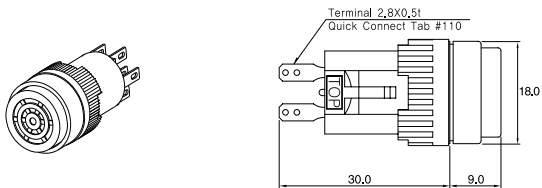
Square



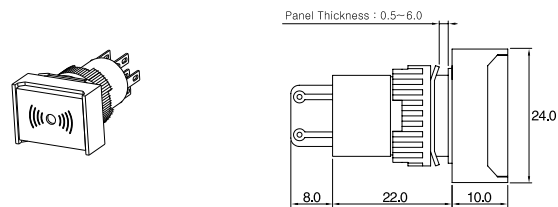
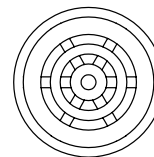
Rectangular



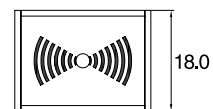
### Buzzer



Round



Rectangular



# Buzzer

## HRB-PS Series



### Part Number Description



<b>HRB</b>	- PS	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>1</b> Size	52 : Ø25mm	50 : Ø30mm			
<b>2</b> Sound Type	I : Interrupted	C : Continued			
<b>3</b> Color	R : Red				
<b>4</b> Supply Voltage	12VAC/DC	24VAC/DC	110VAC/DC	220VAC	

### General Specification

<b>Illumination</b>	Life Cycle : 50,000hrs	Color : Red
<b>Size</b>	PS52 : Ø25mm / PS50 : Ø30mm	
<b>Rated Supply Voltage</b>	12VAC/DC , 24VAC/DC , 110VAC/DC , 220VAC	
<b>Current Consumption</b>	DC : 25mA, AC : 4VA	
<b>Maximum Output</b>	Max. 1W	
<b>Maximum Sound Volume</b>	80(dB) for 1 minute	
<b>Degree of Protection</b>	IP40	
<b>Sound Type</b>	piajo buzzer (interrupted, continuous)	
<b>Dielectric Strength</b>	1,000VAC for 1 minute	
<b>Ambient Temperature</b>	-10 °C to +55 °C (with icing)	
<b>Ambient Humidity</b>	35 ~ 85% RH	
<b>Torque</b>	0.8N·m (8.16kgf·cm)	

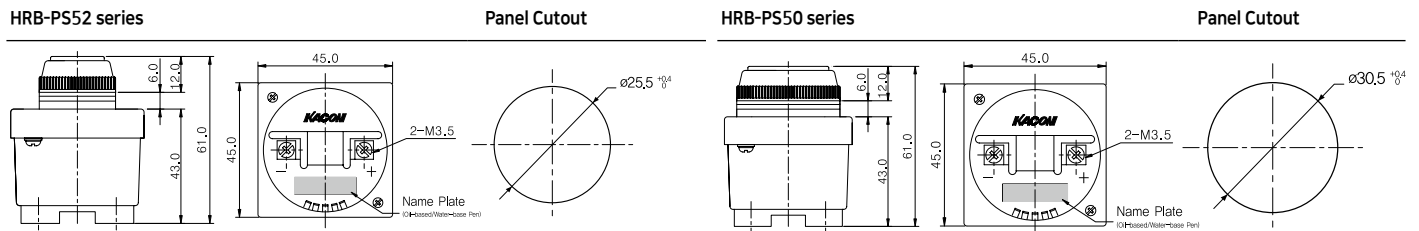
☞ The specification and material of the product can be changed without notice for better quality.

### Product Selection

Description	Sound Type	Part Number	Supply Voltage	Description	Color	Part Number	Supply Voltage		
	Interrupted	HRB-PS52 IR	12VAC/DC		Red	HRB-PS50 IR	12VAC/DC		
			24VAC/DC					24VAC/DC	
					110VAC/DC				110VAC/DC
	Continuous	HRB-PS52 CR	220VAC		Green	HRB-PS50 CR	220VAC		

### Dimensions

Unit : mm



### Caution

- DC electric buzzer has a contact in series with the inductive load coil. therefore, its life is limited, and it may cause disturbance to other devices due to its noise. Installing a noise filter at the power can prevent the noise. If the EMI level of other devices is low, using an electronic buzzer is desirable.
- The external impact may change the tone.

# Buzzer

## KPL-BZ Series



### Part Number Description



**KPL** - BZ 1 2 3

<b>1</b> Sound Type	I : Interrupted	C : Continued		
<b>2</b> Color	R : Red	G : Green		
<b>3</b> Supply Voltage	12VAC/DC	24VAC/DC	110VAC/DC	220VAC

### General Specification

Current Consumption	20mA
Insulation Resistance	100MΩ min.(at 500VDC)
Life Cycle	50,000 hrs
Sound Type	Interrupted, Continued
Maximum Sound Levels	80Phone (dB)
Weight	24g
Ambient Temperature	-25°C - +55°C (with no icing)
Tightening Torque	0.8N·m (8.16kg·cm)

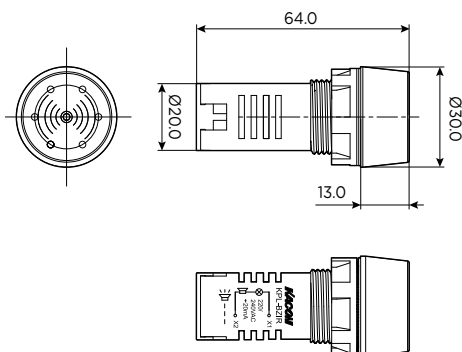
### Product Selection

Description	Color	Part Number	Supply Voltage	Description	Color	Part Number	Supply Voltage
Illuminated Interrupted Sound Buzzer 	Red	KPL-BZIR	12VAC/DC	Illuminated Continued Sound Buzzer 	Red	KPL-BZCR	12VAC/DC
			24VAC/DC				24VAC/DC
			110VAC/DC				110VAC/DC
	Green	KPL-BZIG	220VAC		Green	KPL-BZCG	220VAC

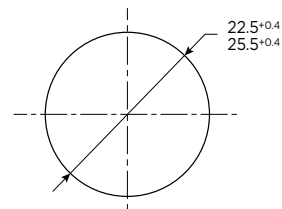
### Dimensions

Unit : mm

Exterior Dimension



Panel Cut out



# Buzzer

## K Series

RoHS CE CCC A



### General Specification

Size	Ø22mm : K22-BZ	Ø25mm : K25-BZ K25F-BZ K25F-BZ-AL	Ø30mm : K30-BZ
Supply Voltage	90VAC - 240VAC	12VDC - 24VDC	
Power Consumption	Max. 5W		
Maximum Output	Max. 1W		
Sound Levels	80dB(Phon) / 1m		
Degree of Protection	IP40		
Sound Type	Continuous	Interrupted	
Tightening Torque	0.8N·m (8.16kgf·cm)		

☞ The structure and the material can be changed without warning for better quality.

### Product Selection

	Description	Supply Voltage Type	Part Number
	Illuminated Flush Ø25 Buzzer	90VAC - 240VAC 12VDC - 24VDC	K25F-BZ
	Illuminated Flush Ø30 Buzzer	90VAC - 240VAC 12VDC - 24VDC	K30F-BZ
	Illuminated AL Ø25 Buzzer	90VAC - 240VAC 12VDC - 24VDC	K25F-BZ-AL
	Illuminated rectangle Ø22 Buzzer	90VAC - 240VAC 12VDC - 24VDC	K22-BZ
	Illuminated rectangle Ø25 Buzzer	90VAC - 240VAC 12VDC - 24VDC	K25-BZ

# Buzzer

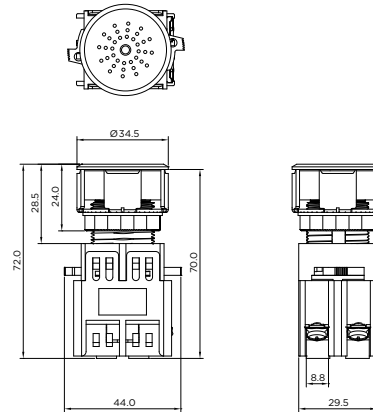
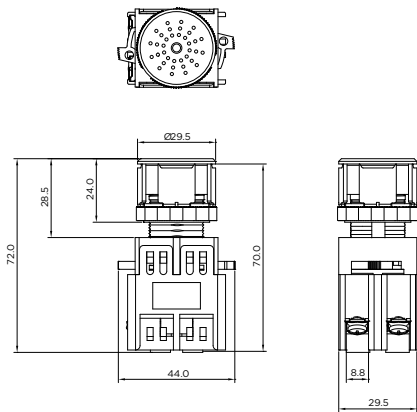
## K Series

### Dimensions & Diagram

Unit : mm

K25F-BZ

K30F-BZ



K25F-BZ-AL

K25-BZ, K30-BZ

