





KUNHUNG ELECTRIC CO., LTD.


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KOINO SAFETY SWITCHES

●● KSD

	ITEM CODE	CONTACTS	OPERATION KEY	CERTIFICATES
	KSD-AB□	1A, 1B	H: Horizontal V: Vertical C: Adjustable	
	KSD-2B□	2B		
	KSD-A□	1A		
	KSD-B□	1B		

●● KSK -DP26

	ITEM CODE	SOLENOID	ACTUATOR	CERTIFICATES
	2B 1A	S: Solenoid	LCR	
	2B 2B		LCL	
	3B		LCLR	
	3B 1A		RCR	

●● Emergency

	ITEM CODE	DIAMETER	MARKING	CERTIFICATES	
	KEPB160ER	Ø16	S: Arrow		
	KEPB22ER	Ø22 Ø25 Ø30			IP 65 (패널전면부)
	KEPB22ERK				

KOINO SAFETY SWITCH

Emergency Series

	ITEM CODE	DIAMETER	INDICATOR	PROTECT	CERTIFICATES
	KSEP-224 KSEP-226	Ø22 Ø25 Ø30	B: Illuminated(LED) P: Non-illuminated	IP 65 (패널전면부)	
	KSEB-224 KSEB-226				

KSE Enclose Box Series

	ITEM CODE	HOLE	DIAMETER	PROTECT
	KSE-221	1	Ø22	IP 65
	KSE-251		Ø25	
	KSE-301		Ø30	
	KSE-221-S	1	Ø22	IP 65
	KSE-251-S		Ø25	
	KSE-301-S		Ø30	

KSD SERIES



KSD Series SAFETY DOOR SWITCH

FEATURE

- IP67(with cable gland)
- Max, surrounding air temperature 40°C

KSD -
① ②

① Contacts Type	AB	1A, 1B
	2B	2B
	A	1A
	B	1B
② Operation Key	H	Horizontal
	V	Vertical
	C	Adjustable

* Direct opening structure is not available with Contact type "A"

Specification

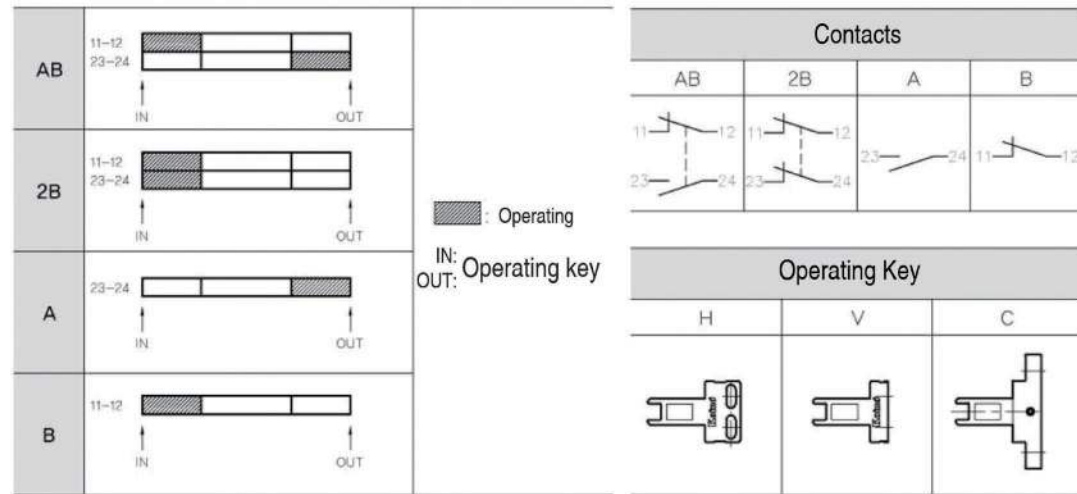
Ratings	250VAC 3A, 250VDC 0.27A, AC- 15, DC- 13	
Insulation resistance	100MΩ minimum (DC500V insulation resistance)	
Dielectric strength	Between contacts: 1,000VAC(50/60Hz)	
	Between contacts & non- current carrying parts 1,500VAC(50/60Hz) 1min.	
Contact resistance	25mΩ max.(default)	
Rated insulation voltage	500V	
Vibration resistance	10 to 55Hz, 1.5mm X, Y, Z amplitude	
Shock resistance	30G(300 m/s ²) minimum	
Ambient temperature	- 30°C □+ 70°C (not frozen condition)	
Ambient humidity	45 □85% RH	
Durability	Mechanical: 1,000,000 operations. Electrical: 300,000 operations.	
Operating frequency	30operations per 1 minute	
Degree of protection	IP67(body)	
Direct opening force	60N	
Direct opening travel	10mm minimum	
Electric shock protection	Class II(double insulation)	
Pollution degree	3(EN60947- 5- 1)	
Impulse withstand voltage	Between terminals of same polarity	2.5kV(EN60947- 5- 1)
	Between terminals of different polarity	4kV(EN60947- 5- 1)
	Between other terminals & non-current carrying metallic parts	6kV(EN- 60947- 5- 1)
Conditional short-circuit current	100A(EN60947- 5- 1)	

SAFETY DOOR SWITCH



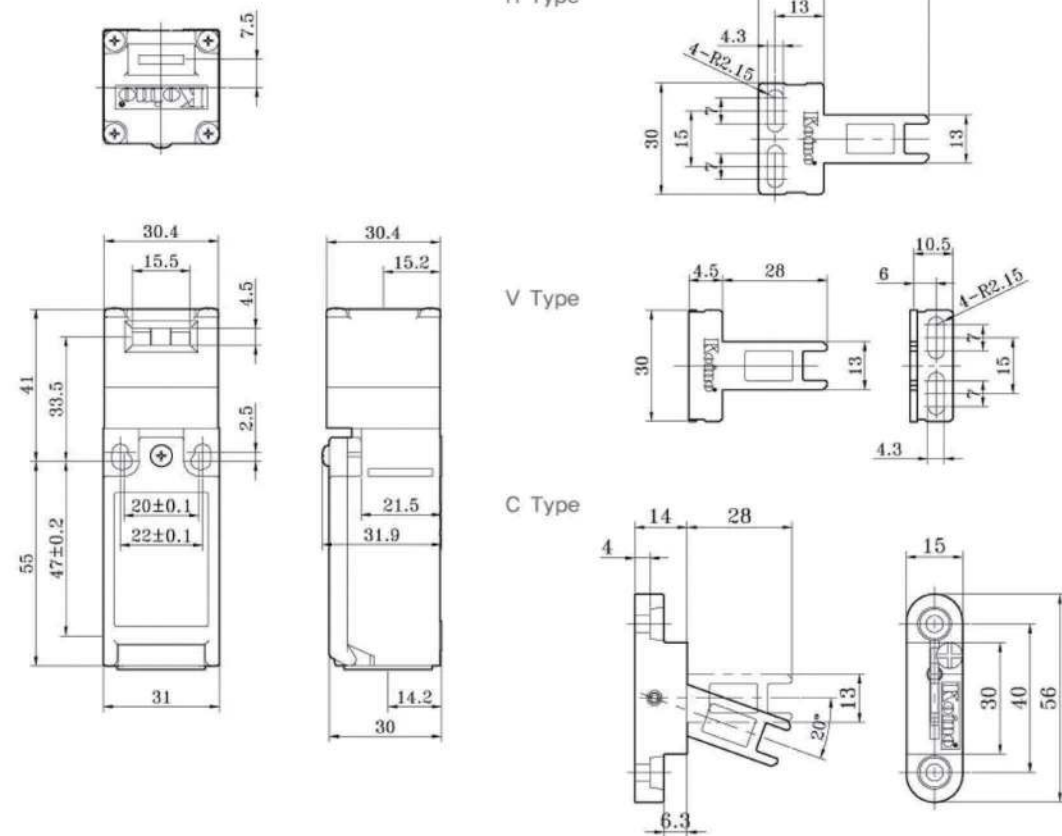
SAFETY DOOR SWITCH

Operation



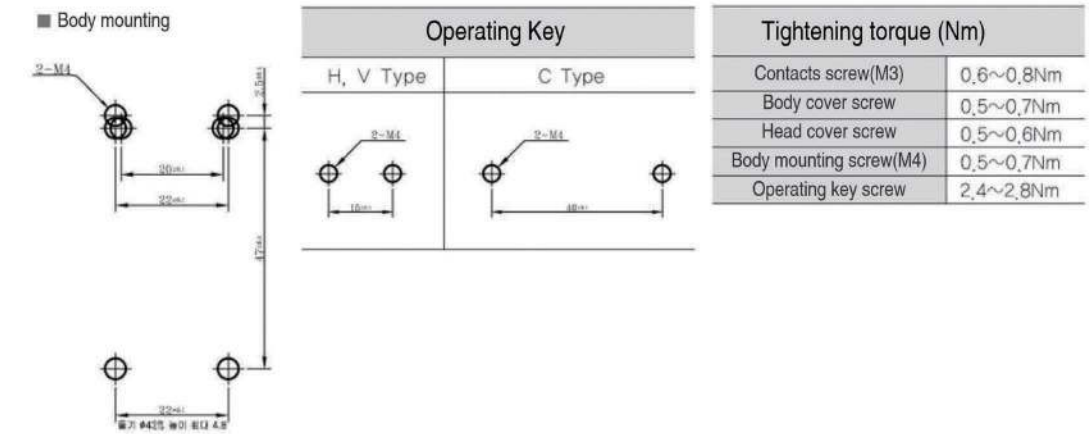
Dimension

KSD Series

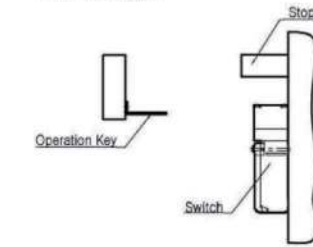


SAFETY DOOR SWITCH

Mount & Install

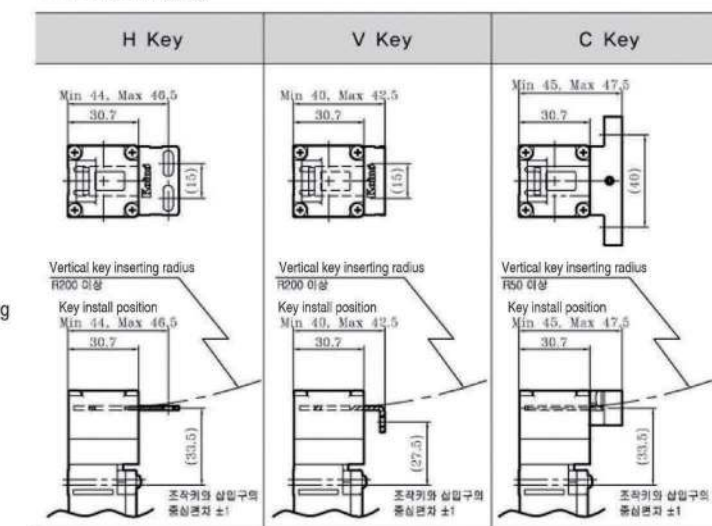


■ Install Stopper



- * Do not use body as a stopper
- * Mount the stopper to prevent the operating key from reaching the head

■ Install operating key



- * Use cable gland for connect cable
- * Key insert force: 15N max. , extraction force: 30N max.

Precaution

- The above values are initial values.
- Do not operate key inserting hole away from metal scrap, oil, water, chemical gases.
- Keep the key inserting hole away from metal scrap, oil, water, chemical gases.
- The degree of protection is tested using the method specified by the standard(EN60947- 5- 1). Confirm that sealing properties are sufficient for the operating conditions and environment beforehand.
- The durability is for an ambient temperature of 5 to 35°C and an ambient humidity of 40% to 70%.
- Do not exceed 50%RH if the temperature is more than 40°C.

KSK-DP26

Trapped key interlock safety switch



FEATURE

- Direct opening circuit structure by solenoid operation
- By adding locking functions with the key switch for maintenance, allowed to prevent malfunctions and to ensure safety of the operators
- Various functions (Single or multiple key units available)
- *For mode conversions: Mode converting switch for maintenance
- *For multiple users(external) : Switch to allow internal entry for maintenance of multiple users
- *For multiple users(internal) : Internal control switch to confirm maintenance

SELECTION GUIDE



K : KOINO
S : Safety
K : key Switch

① Contacts	Code	Description	② Solenoid	Code	Description
	21	2B 1A		Blank	Non-solenoid
	22	2B 2A		S	With solenoid
	30	3B			
	31	3B 1A			

③ Actuator (Key)	Code	Description	Key release position	NC contacts	Key lock position
	LCR	Internal	⊘	⊘	⊘
	LCL		⊘	⊘	⊘
	RCR	External	⊘	⊘	⊘

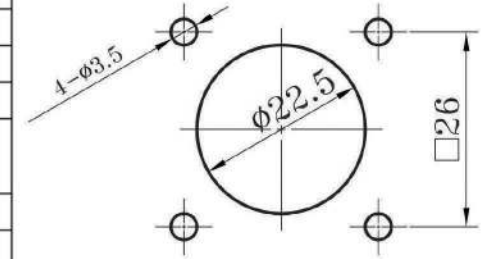


The maximum number of NO contacts: 2
The maximum number of NC contacts: 3
The maximum number of NO+NC contacts: 4
Key lock function is available with solenoid type only

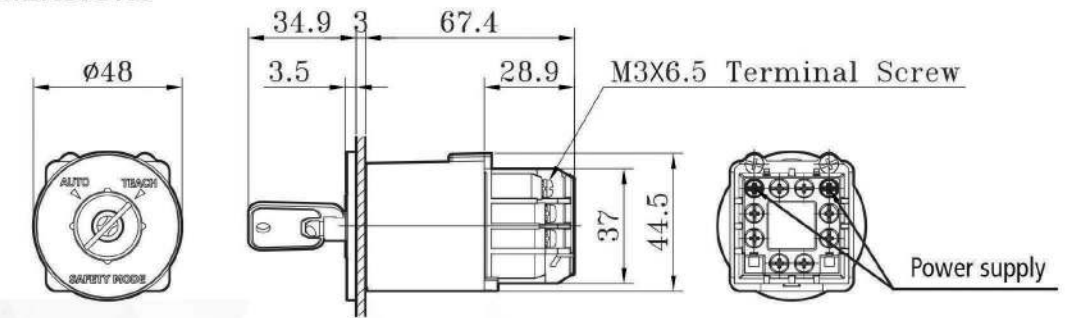
SPECIFICATIONS

Contact rating	24VDC 3A
Insulation resistance	100MΩ (DC500V)
Withstand voltage	2500VAC(50Hz/60Hz for 1 minute)
Contact resistance	Maximum 50MΩ
Electrical durability	Minimum 100000 operations (15 per 1minute)
Mechanical durability	Minimum 100000 operations
Vibration resistance	10~55Hz 3 axis 1.5m X, Y, Z each direction for 1 h
Shock resistance	Destruction at 30G minimum
Operating ambient temperature	-25°C~+50°C (not frozen condition)
Ambient humidity	-25°C~+80°C (not frozen condition)
ON/OFF interface	Direct opening structure

PANEL CUT-OUT



DIMENSIONS

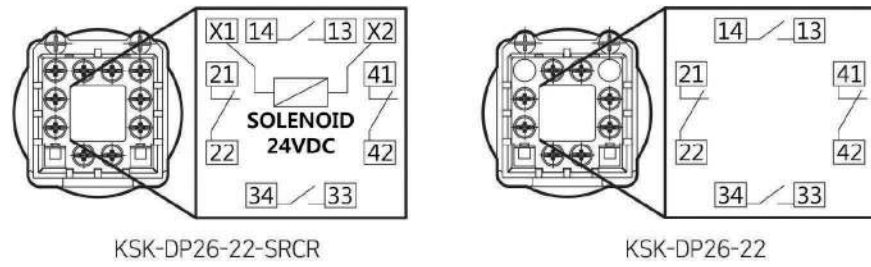


ACCESSORIES - LABEL PLATE

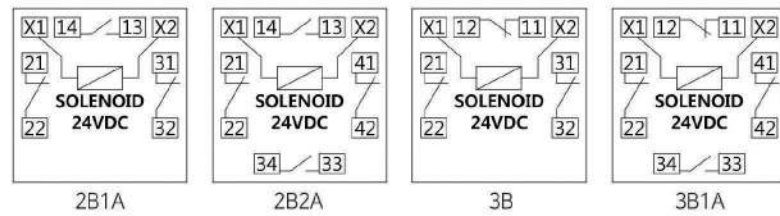
Mode converting		Basic		Basic Parts
KSK-AT-ON	KSK-TA-IN	KSK-NN-GN	KSK-MTP	KSK-KCW
Multiple users(External)			Multiple users(Internal)	
KSK-MP1-ON	KSK-MP2-ON	KSK-MP1-IN	KSK-MP2-IN	KSK-MP2-IN
다인수 스위치(1)	다인수 스위치(2)	다인수 스위치(1)	다인수 스위치(2)	다인수 스위치(3)

접점 배열 (Bottom View)

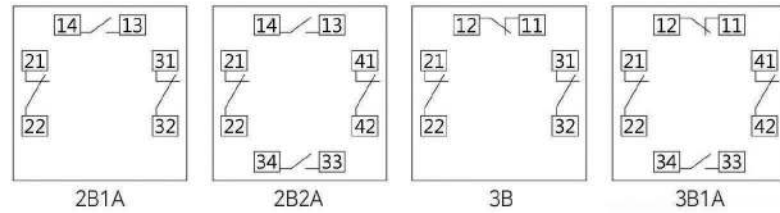
X1, X2: Solenoid only
Input voltage for solenoid: 24VDC



■ Solenoid

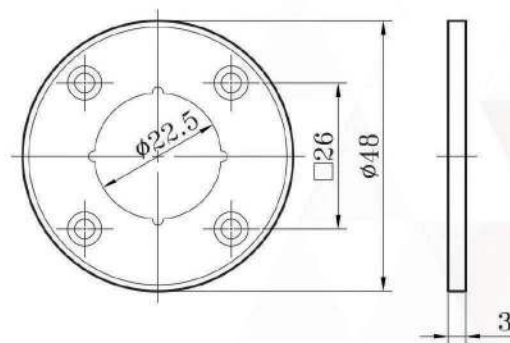


■ Non-solenoid

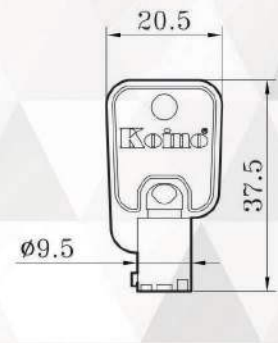


악세서리 (Accessories)

Included in package



KSK-DP26 Front Panel



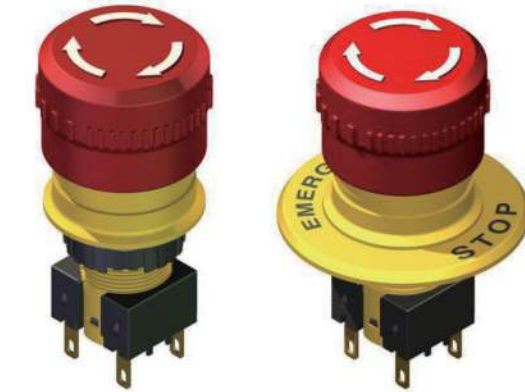
KSK-DP26 KEY

Ø16
c us

EMERGENCY STOP SWITCH

KEPB160ER

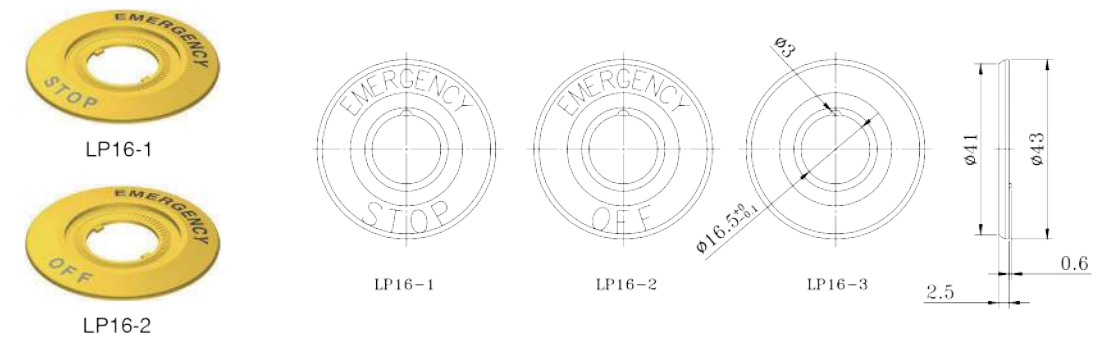
Mounting cut-out: Ø16mm
Front dimension: Ø28mm
Marking: Arrows
IP-Rating: IP65
Switching action: Maintained
Function: Emergency STOP Switch
Twist to unlock clockwise



INSTALLATION



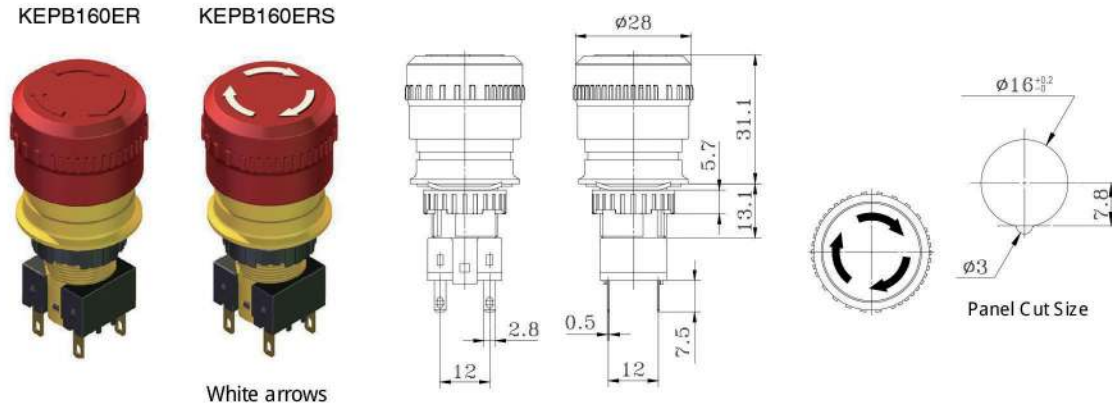
Dimensions





EMERGENCY STOP SWITCH

Dimensions



Specification

Switching System	The switching element of KEPB160ERS is equipped with normally open contact or normally closed contact. The normally closed contact has direct opening or forced opening structure.					
Material	Contact	Silver alloy + Copper	Housing	Nylon	Buttons	PC
Mechanical Lifetime	150,000 Cycles of operation					
Standards	This product comply with " Standards for low- voltage switching devices" EN IEC 60947- 5- 1					
Contact Ratings	250VAC 3A, 125VAC 5A (resistive load)					
Insulation Resistance	Minimum 100MΩ (500VDC)					
Contact Resistance	Maximum 30mΩ					
Electrical Lifetime	100,000 cycles of operation					
Operational Temperature	- 15° C □+50° C					
Protection Degree	IP65					
Shock Resistance	Approximately 15G					
Vibration Resistance	10 □55Hz double amplitude 1.5mm (at X, Y and Z axis)					
Approbations	UL					
Declaration of Conformity	CE					



EMERGENCY STOP SWITCH

KEPB22ER

Mounting cut- out : Ø22.5mm
 Front dimension : Ø36mm
 Marking: Arrows
 Weight: 70g
 IP- Rating : IP65
 Switching action : Maintained
 Function : Emergency STOP Switch
 Twist to unlock clockwise



KEPB22ER

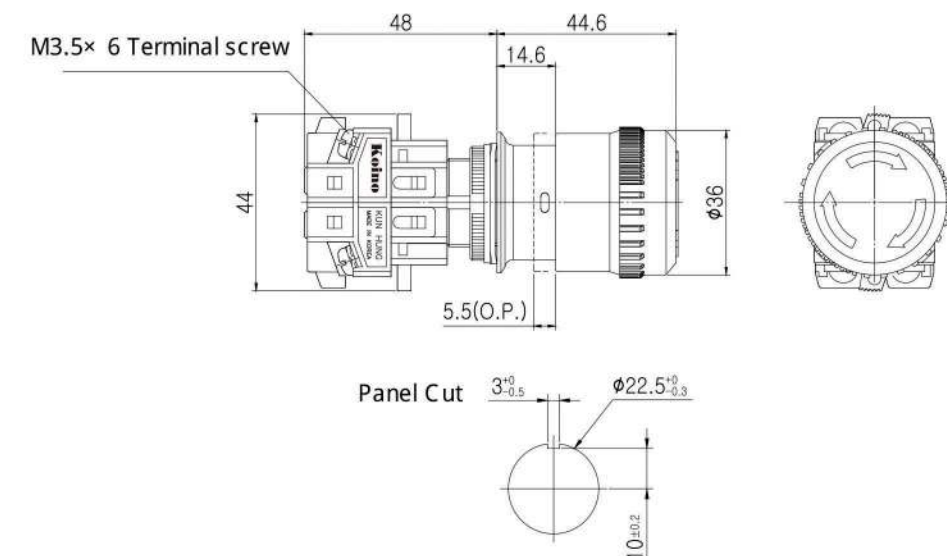


KEPB22ERS



KEPB22ERK

Dimensions



Specification

Switching System	The switching element of KEPB22ER, KEPB22ERS and KEPB22ERK is equipped with normally open contact or normally closed contact. The normally closed contact has direct opening or forced opening structure.			
Material	Contact	Silver alloy + Copper	Housing	Nylon
Mechanical Lifetime	300,000 Cycles of operation			
Terminals	Screw Terminals			
	Maximum wire cross section : 2.5 mm ² Tightening torque : 25-30 Ncm			
Standards	This product comply with " Standards for low- voltage switching devices" EN IEC 60947- 5- 1			
Contact Ratings	125VAC 10A, 250VAC 6A (resistive load)			
Insulation Resistance	Minimum 100MΩ (500VDC)			
Contact Resistance	Maximum 30mΩ			
Electrical Lifetime	100,000 cycles of operation			
Operational Temperature	- 15°C □ +50°C			
Protection Degree	IP65			
Shock Resistance	Approximately 100G(1,000m/s ²)			
Vibration Resistance	10 □55Hz double amplitude 1.5mm (at X, Y and Z axis)			
Approbations	UL			
Declaration of Conformity	CE			

Accessories

LP22- 1

LP22- 2

SC- 22

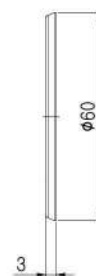


LP22-1

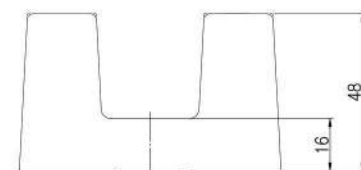
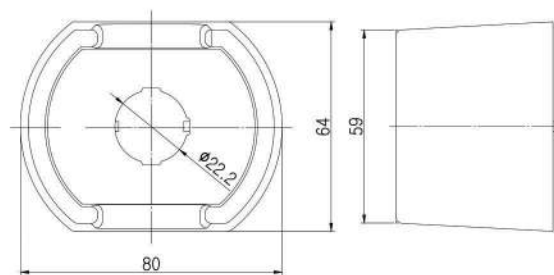
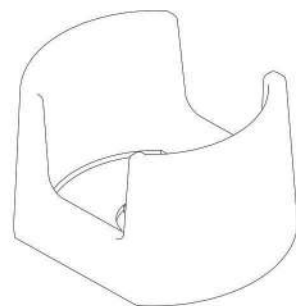


LP22-2

LP22-3



SC-22



KSE SERIES

EMERGENCY STOP SWITCH

KSE Series Emergency Stop Switch

Dimensions

- Illuminating, Non- illuminating type available
- Direct opening mechanism
- IP67(Front panel side)
- Momentary, Alternate push button

KSE Series



KSE □ - □ □ □ □ □ □
① ② ③ ④ ⑤ ⑥

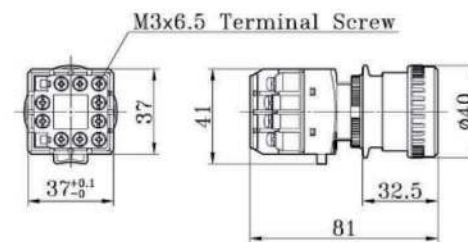
① LED lamp	P	Push button
	B	Illuminating Push button(LED)
② Panel hole cut size	22	Φ 22mm
	25	Φ 25mm
	30	Φ 30mm
③ Button head	4	Φ 40mm
	6	Φ 60mm
	1C	DC 6V
④ LED Input voltage	2C	DC 12V
	3C	DC 24V
	1A	AC 110V
	2A	AC 220V
⑤ NO contacts	0	None
	1	1a
⑥ NC contacts	2	2a
	1	1b
	2	2b
	3	3b
	4	4b

*NO contacts: 2 max., NC contacts: 3 max.

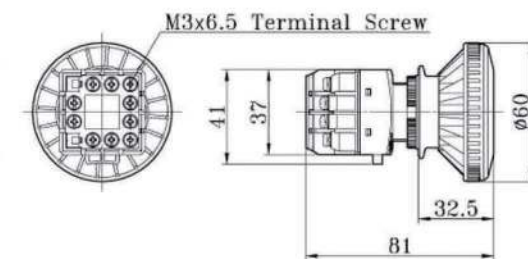
Total number of contacts: 4 max.

Dimensions

KSE □ - □ 4 □ □ □ □



KSE □ - □ 6 □ □ □ □

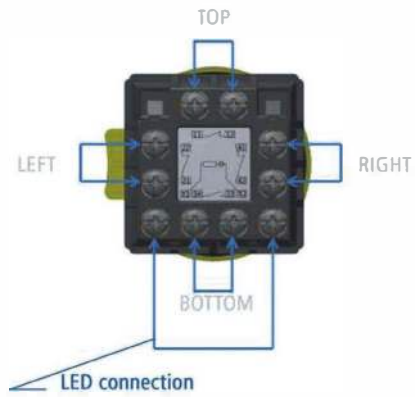


EMERGENCY STOP SWITCH

Specification

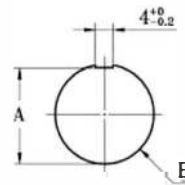
Contact rating	250VAC 3A (Resistance load)
Insulation resistance	100MΩ minimum (DC500V megger)
Contact resistance	50mΩ maximum (Default)
Dielectric strength	Between terminals of same polarity: 2,500VAC(50/60Hz) for 1 min.
Vibration resistance	10 to 55Hz, double amplitude 1.5mm X, Y, Z axis for 1 hour
Shock resistance	Durability: 100G(1,000 m/s ²) minimum Malfunction: 15G(150m/s ²) minimum
Operating frequency	900/hour
Durability	Mechanical: 250,000 operations. Electrical: 100,000 operations(15/minute)
Degree of protection	IP66(Terminal screw:IP20)
Ambient operating temperature	- 25°C to 50°C (not frozen condition)
Ambient temperature(Idle)	- 25°C to 80°C (not frozen condition)
Ambient operating humidity	45% to 85% RH
Switch contacts	NO/NC Direct opening mechanism
Push button	Push & turn to reset, Push & Pull to reset
Minimum operation force	5Kg f(49N)
Direct opening travel	minimum 3.8mm, maximum 4.5mm

Connection



	TOP	BOTTOM	LEFT	RIGHT	
1A		●			
2A	●	●			
1B				●	
2B			●	●	
3B	●		●	●	
4B	●	●	●	●	
1A1B		●		●	"BOTTOM" A contact
1A2B		●	●	●	"BOTTOM" A contact
1A3B	●	●	●	●	"BOTTOM" A contact
2A1B	●	●		●	"TOP" "BOTTOM" A contact
2A2B	●	●	●	●	"TOP" "BOTTOM" A contact

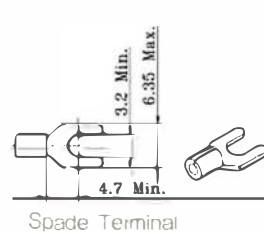
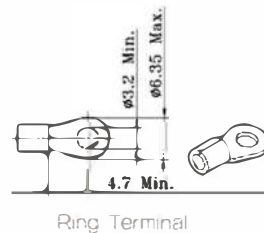
Hole Cut



	A	B
KSE22	21.5~21.7mm	22.2~22.5mm
KSE25	24~24.3mm	25.2~25.5mm
KSE30	29~29.3mm	30.2~30.5mm

Precautions

- Check the wire connection before operation
- Loose screws may result in malfunction, overheat and fire. Confirm the tightening torque 0.6 to 1.0 Nm



Temperature: 40°C Ambient
Enclosure Type : Flat Surface of Type 4X Indoor Use Only

SAFETY COVER

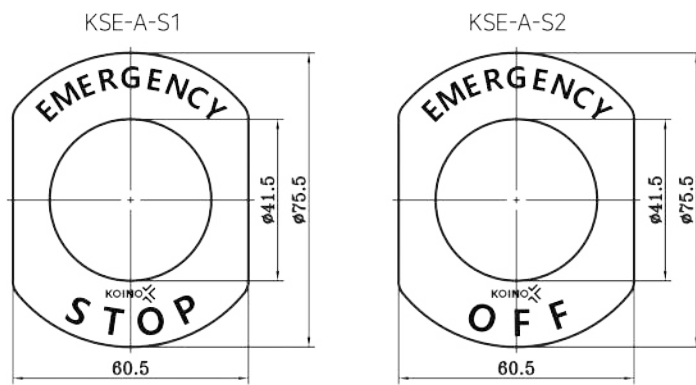
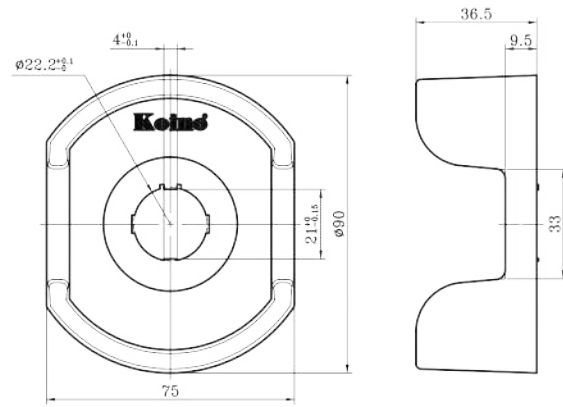
보호카바 형명 정리

모양	모델명	부착형태	스티커 형명(별매)
	<개폐형 - 황색> KSE22-A-P0 KSE25-A-P0 KSE30-A-P0		EMERGENCY STOP KSE-A-S1 / EMERGENCY OFF KSE-A-S2
	<개폐형 - 백색> KSE22-A-P0-1 KSE25-A-P0-1 KSE30-A-P0-1		
	<매입형> SE22-A-U1 SE25-A-U1 SE30-A-U1		EMERGENCY STOP SE-A-S1 EMERGENCY OFF SE-A-S2
	<돌출형 - 플라스틱> SE22-90 SE25-90 SE30-90		EMERGENCY STOP 22-90-1 EMERGENCY OFF 22-90-2
	<돌출형 - 알루미늄> SE22-90AL SE25-90AL SE30-90AL		EMERGENCY STOP SE22-90AL-1 EMERGENCY OFF SE22-90AL-2
	<알루미늄> SE-22 SE-25 SE-30		
	<플라스틱> LP22-3(STOP) LP22-4(OFF)		

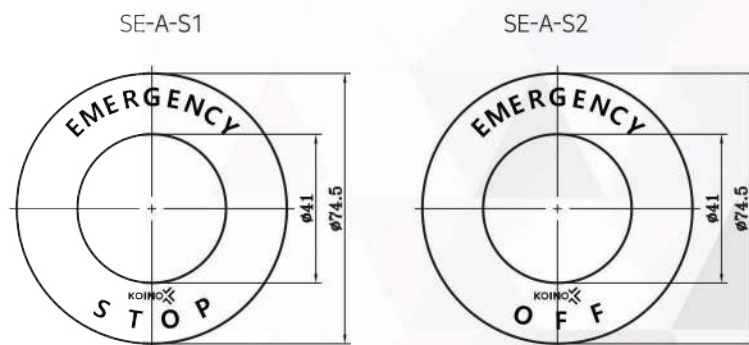
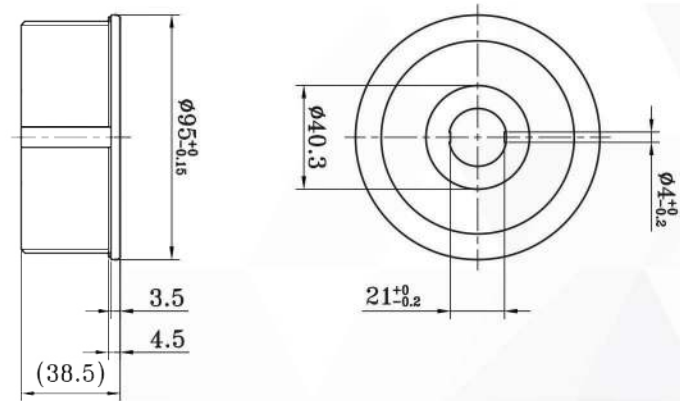
SAFETY COVER

외형치수도

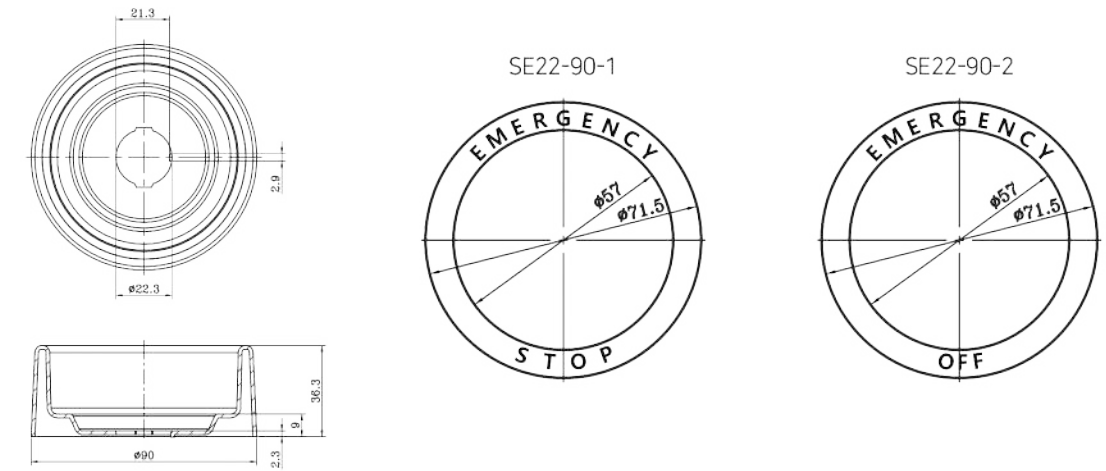
■ KSE22-A-PO



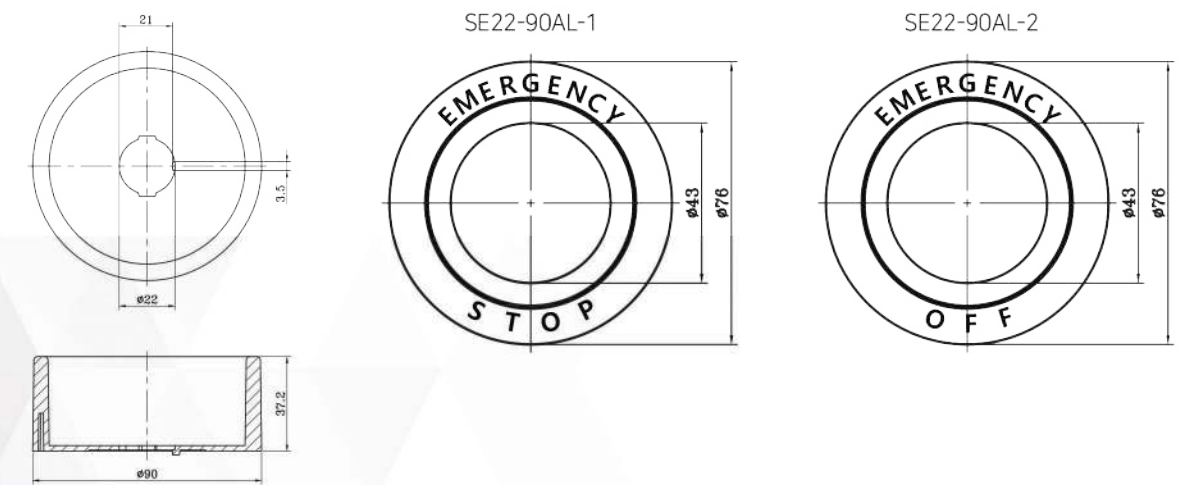
■ SE22-A-U1



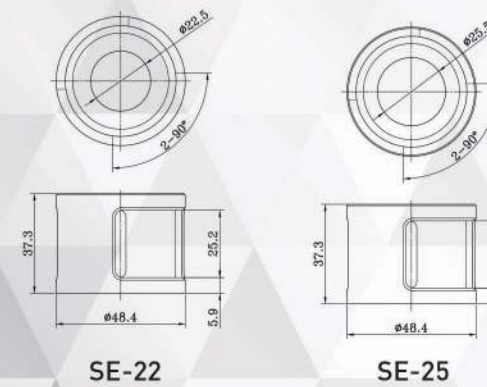
■ SE22-90



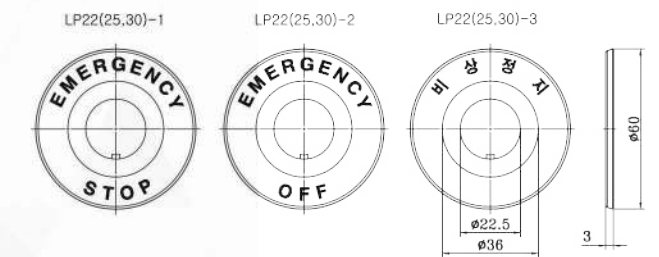
■ SE22-90AL



■ SE22



■ LP22



KSE

Enclose Box



FEATURE

- Various diameter
- IP65
- High durability
- Flame retardant material (UL V-0)

SELECTION GUIDE

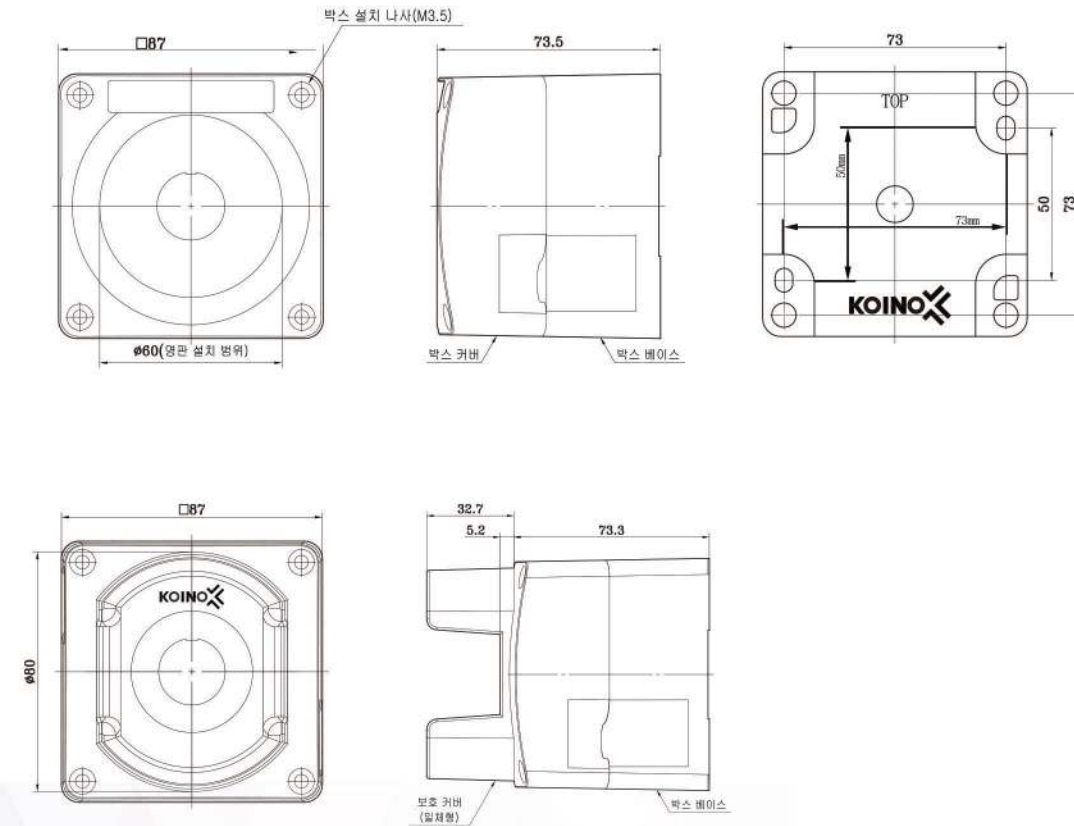
KSE - 221 S - 1

	Description
Item code	Safety Enclose Box
Diameter	221 : ø22mm One Hole type
	251 : ø25mm One Hole type
	301 : ø30mm One Hole type
Safety cover	None
	S: Safety cover
Marking	None
	1 : EMERGENCY STOP 2 : EMERGENCY OFF

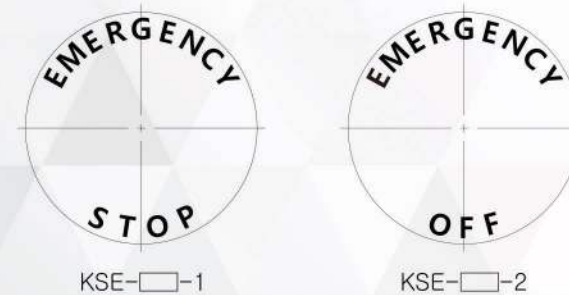
SPECIFICATION

	Description
Material	ABS(UL V-0)
Color	Body: Yellow, Printing: Red
Usage humidity	45~85% (in not frozen condition)
Using ambient temperature	-25 ~ +65℃ (in not frozen condition)
Storage ambient temperature	-40 ~ +80℃ (in not frozen condition)
Pollution degree	Degree 3
Protect degree	IP65
Electric shock protection class	Class II

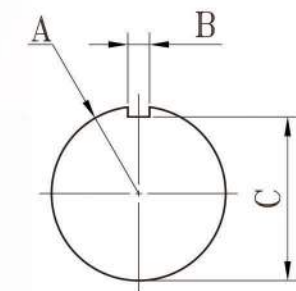
DIMENSIONS



MARKING



DIAMETER



형명 구분	A	B	C
KSE-221	$\phi 22.3^{+0.3}_0$	3.4 ^{+0.2}	21.7 ^{+0.2}
KSE-251	$\phi 25.3^{+0.3}_0$		24.3 ^{+0.3}
KSE-301	$\phi 30.3^{+0.3}_0$		29.2 ^{+0.3}