





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 | | RCL | |

•• 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 | | Ø22 | |
| | 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

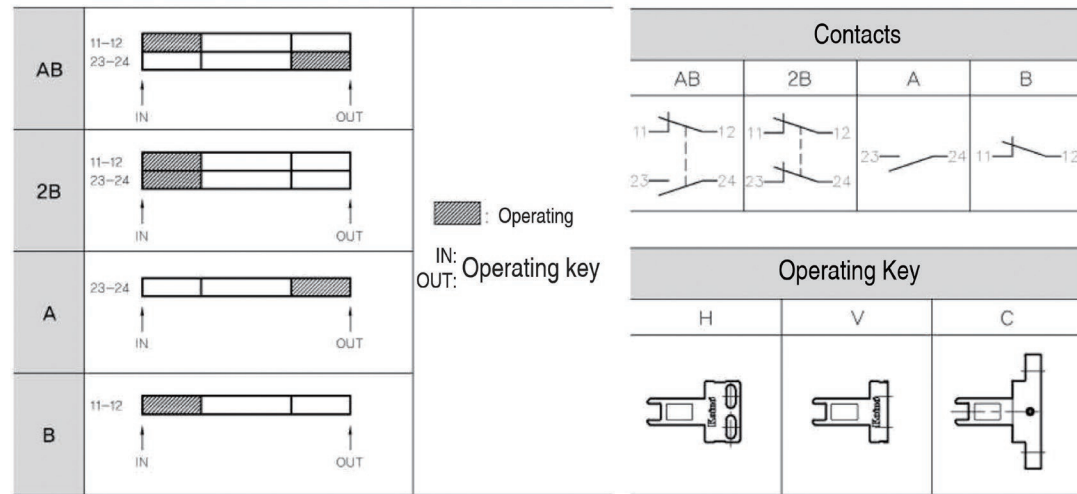
| | | |
|-----------------------------------|--|----------------------|
| Ratings | 250VAC 3A, 250VDC 0.27A, AC- 15, DC- 13 | |
| Insulation resistance | 100MΩ minimum (DC500V insulation resistance) | |
| Dielectric strength | Between contacts: 1,000VAC(50/60Hz) | |
| | Between contacts & non- current 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



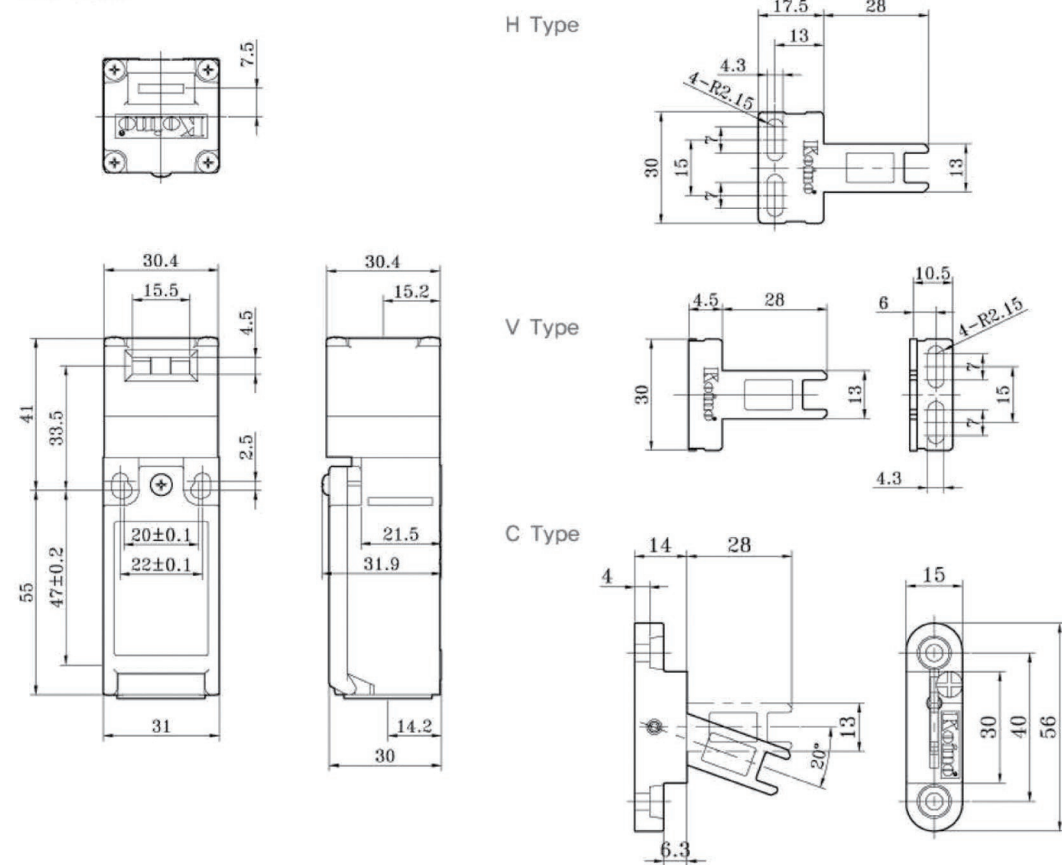
SAFETY DOOR SWITCH

Operation



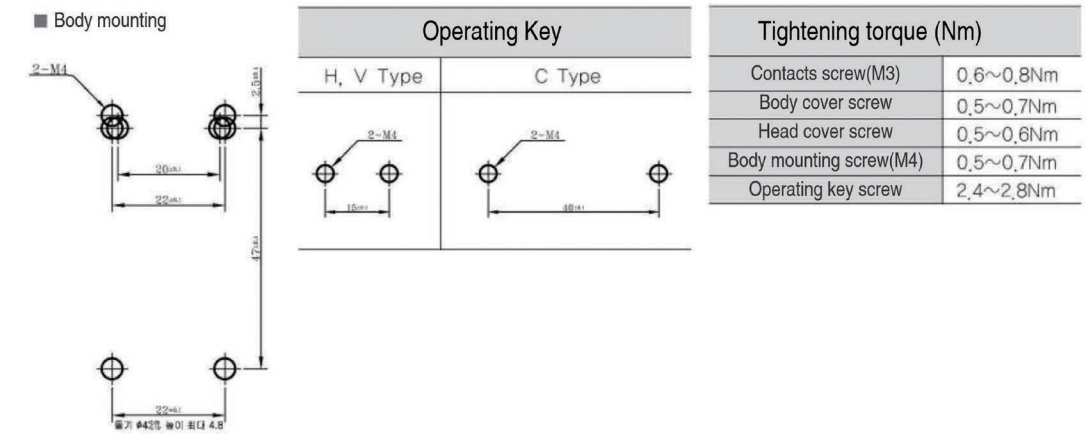
Dimension

KSD Series

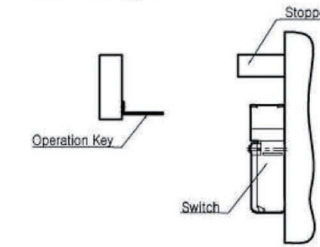


SAFETY DOOR SWITCH

Mount & Install

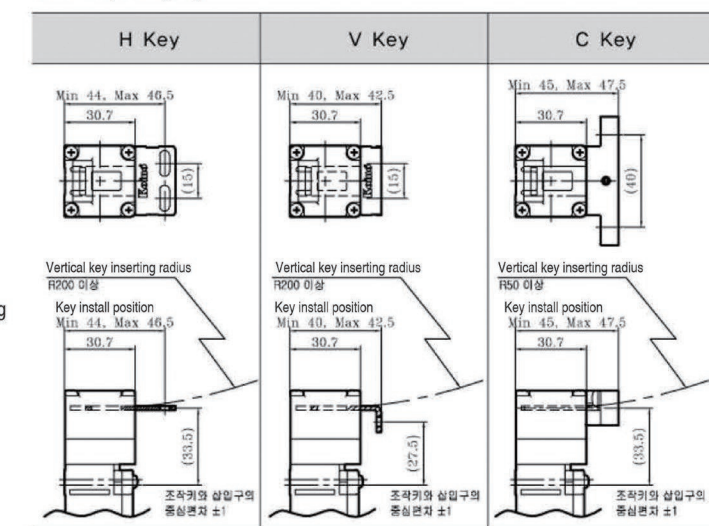


■ Install Stopper



- * 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 | | | | |

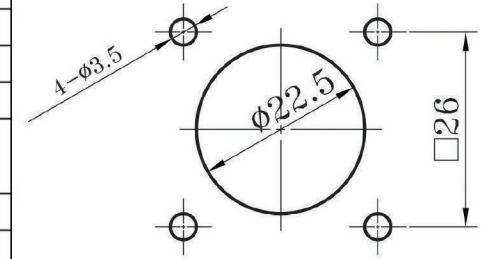


The maximum number of NO contacts: 2
 The maximum number of NC contacts: 3
 The maximum number of NO+NC contacts: 4
 Key lock function is available with solenoid type only

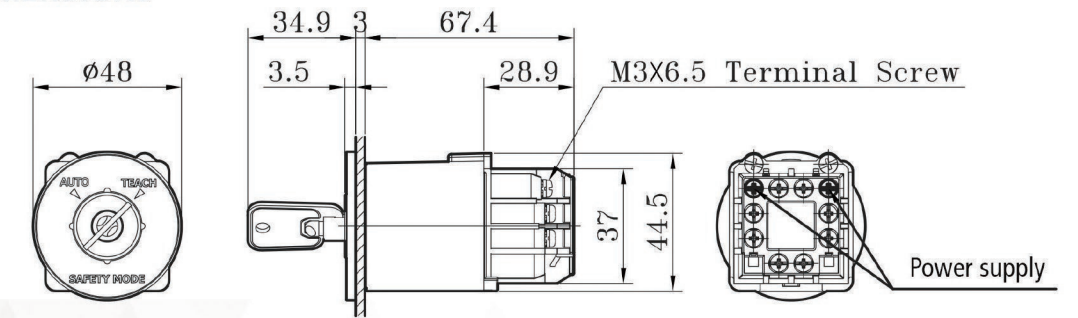
SPECIFICATIONS

| | |
|-------------------------------|---|
| 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

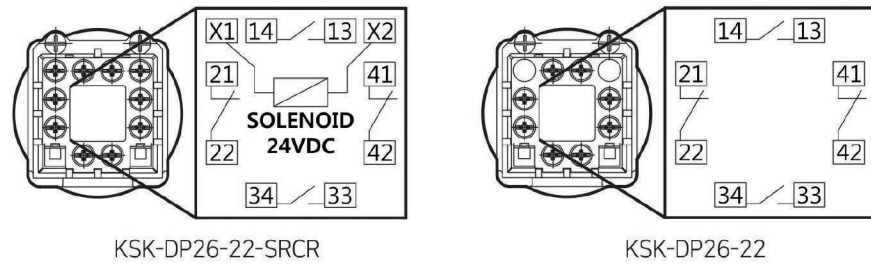


ACCESSORIES - LABEL PLATE

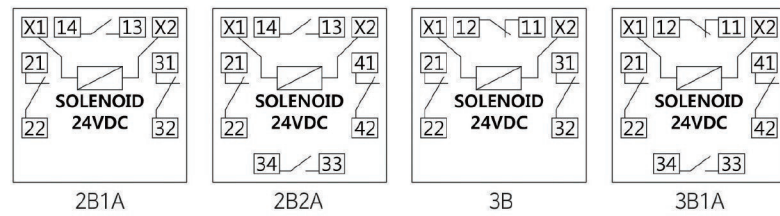
| Mode converting | | Basic | | Basic Parts |
|--------------------------|------------|------------|--------------------------|-------------|
| KSK-AT-ON | KSK-TA-IN | KSK-NN-GN | KSK-MTP | KSK-KCW |
| | | | | |
| Multiple users(External) | | | Multiple users(Internal) | |
| KSK-MP1-ON | KSK-MP2-ON | 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)

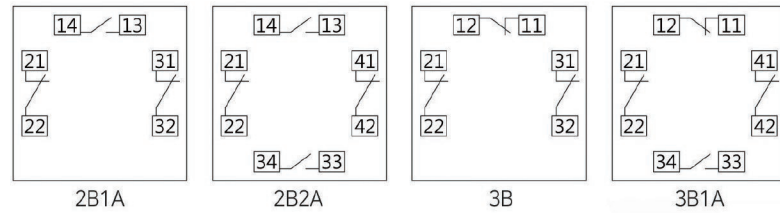
X1, X2: Solenoid only
Input voltage for solenoid: 24VDC



■ Solenoid

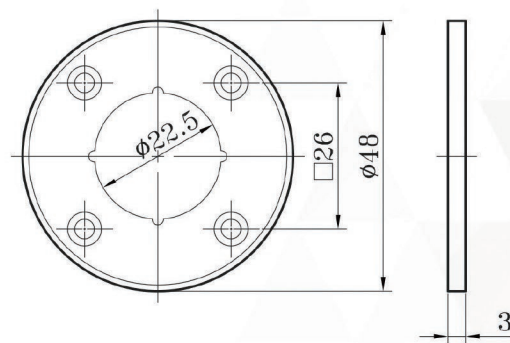


■ Non-solenoid

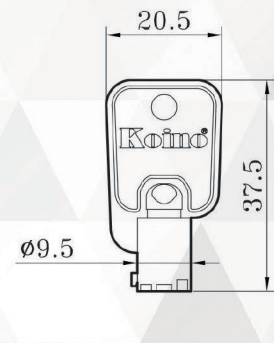


악세서리 (Accessories)

Included in package



KSK-DP26 Front Panel



KSK-DP26 KEY

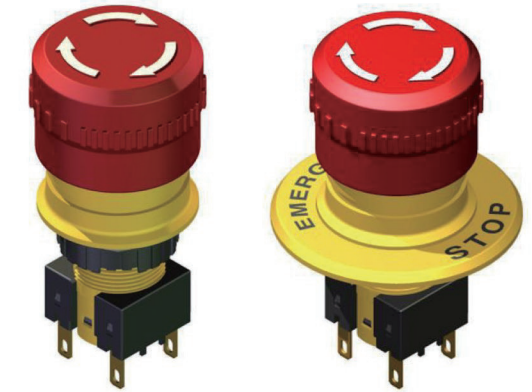
Ø16

UL us CE

EMERGENCY STOP SWITCH

KEPB160ER

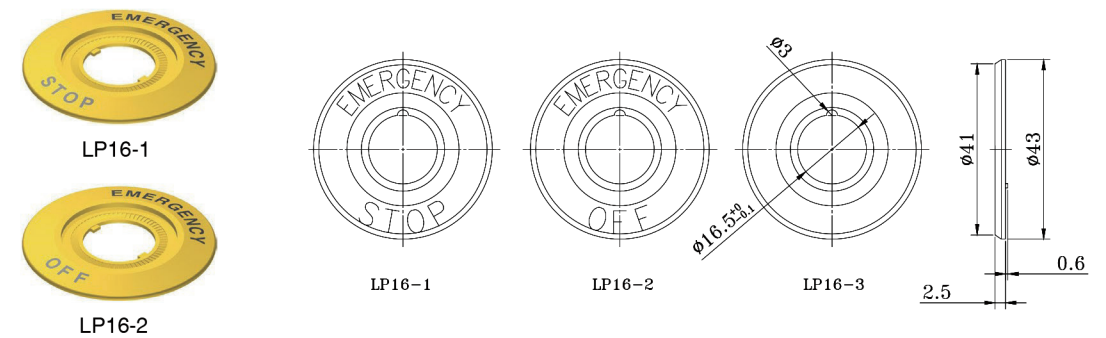
Mounting cut-out : Ø16mm
Front dimension : Ø28mm
Marking: Arrows
IP- Rating : IP65
Switching action : Maintained
Function : Emergency STOP Switch
Twist to unlock clockwise



INSTALLATION



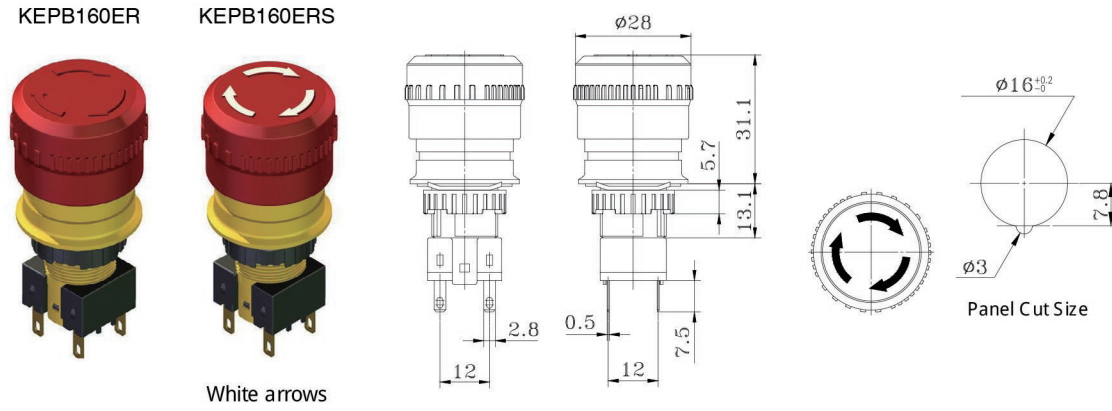
Dimensions





EMERGENCY STOP SWITCH

Dimensions



Specification

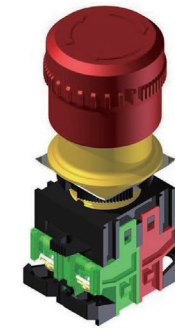
| | | | | | | |
|---------------------------|--|-----------------------|---------|-------|---------|----|
| Switching System | The switching element of KEPB160ERS is equipped with normally open contact or normally closed contact. The normally closed contact has direct opening or forced opening structure. | | | | | |
| 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 | | | | | |



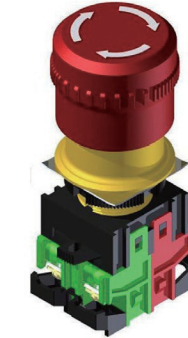
EMERGENCY STOP SWITCH

KEPB22ER

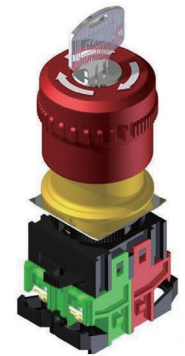
Mounting cut- out : Ø22.5mm
 Front dimension : Ø36mm
 Marking: Arrows
 Weight: 70g
 IP- Rating : IP65
 Switching action : Maintained
 Function : Emergency STOP Switch
 Twist to unlock clockwise



KEPB22ER

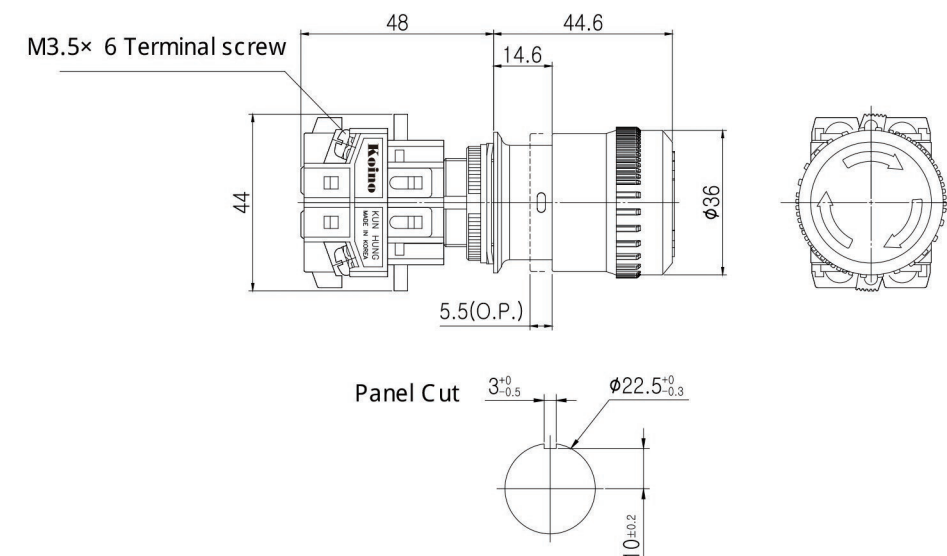


KEPB22ERS



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



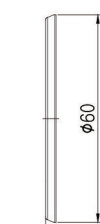
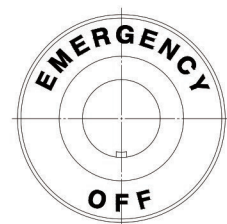
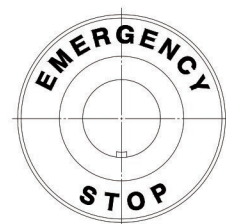
LP22-1

LP22- 2

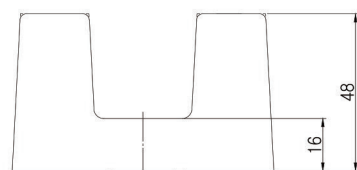
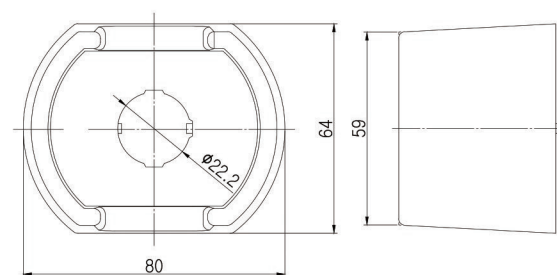
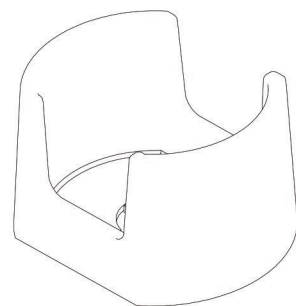


LP22-2

SC- 22



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

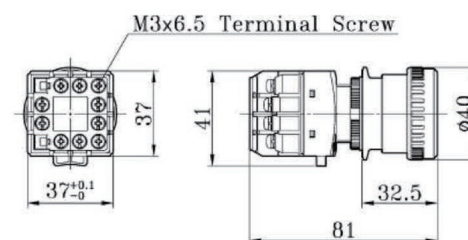
| ① LED lamp | P | Push button |
|-----------------------|----|-------------------------------|
| | B | Illuminating Push button(LED) |
| ② Panel hole cut size | 22 | Φ 22mm |
| | 25 | Φ 25mm |
| | 30 | Φ 30mm |
| ③ Button head | 4 | Φ 40mm |
| | 6 | Φ 60mm |
| | 1C | DC 6V |
| ④ LED Input voltage | 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.

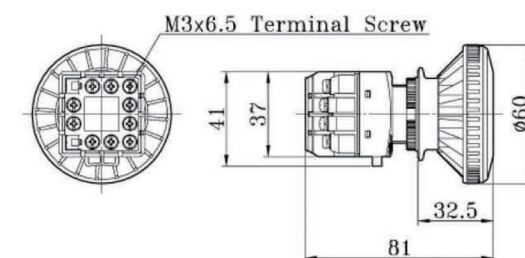
Total number of contacts: 4 max.

Dimensions

KSE □ - □ 4 □ □ □ □



KSE □ - □ 6 □ □ □ □

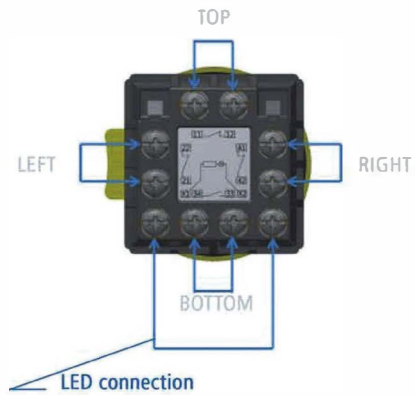


EMERGENCY STOP SWITCH

Specification

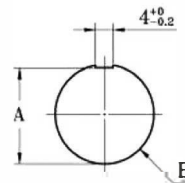
| | |
|-------------------------------|---|
| Contact rating | 250VAC 3A (Resistance load) |
| Insulation resistance | 100MΩ minimum (DC500V megger) |
| Contact resistance | 50mΩ maximum (Default) |
| Dielectric strength | Between terminals of same polarity: 2,500VAC(50/60Hz) for 1 min. |
| Vibration 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 |

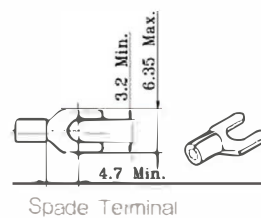
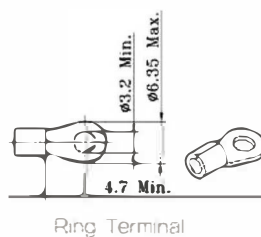
Hole Cut



| | 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

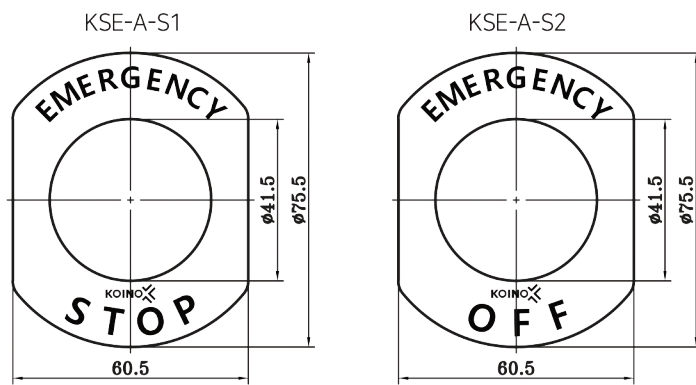
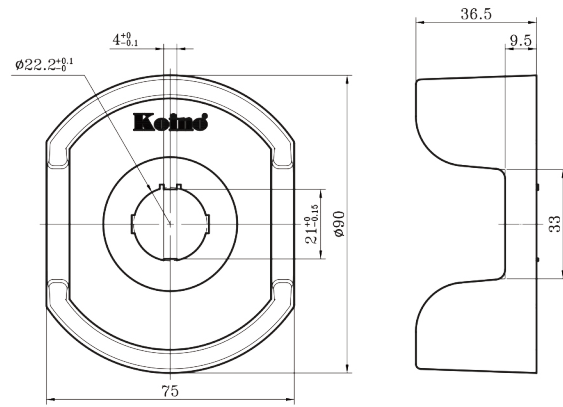
보호카바 형명 정리

| 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) | | |

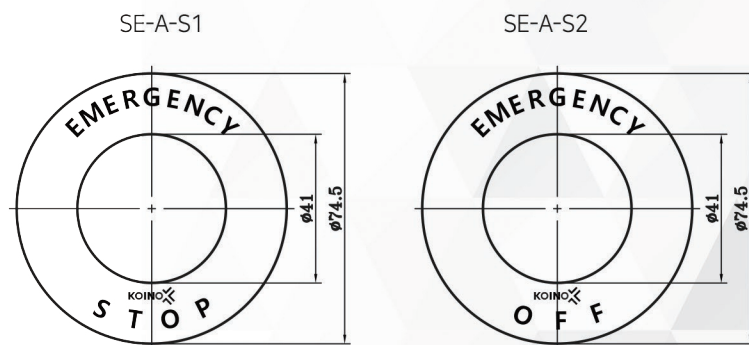
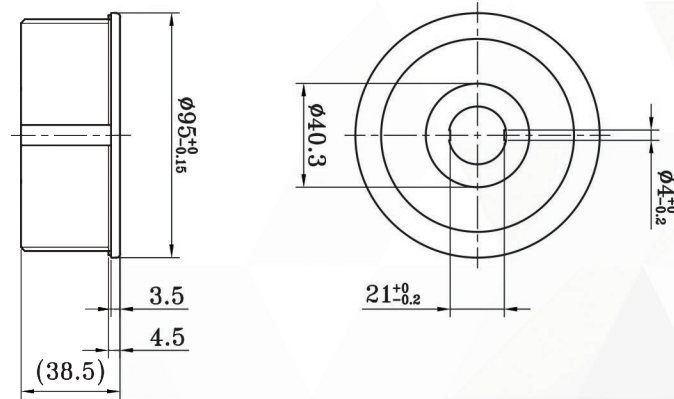
SAFETY COVER

외형치수도

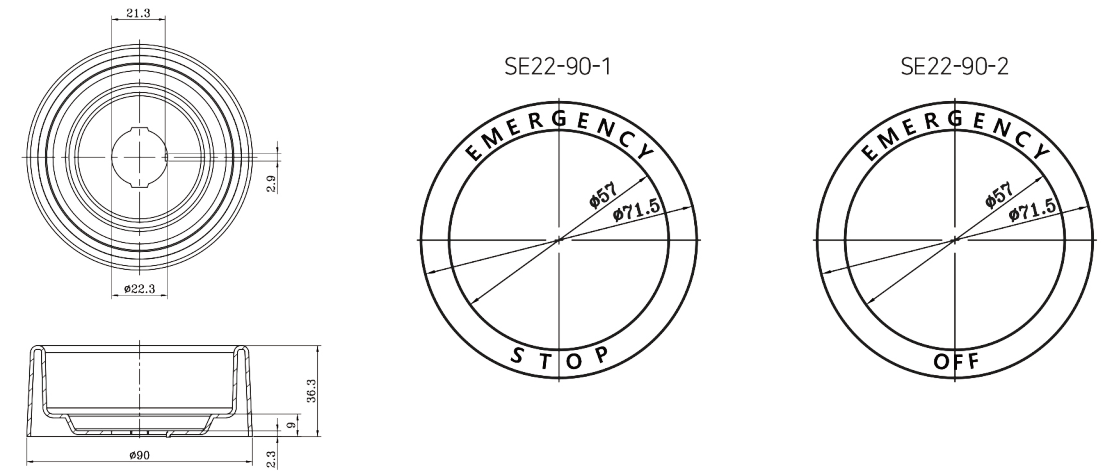
■ KSE22-A-PO



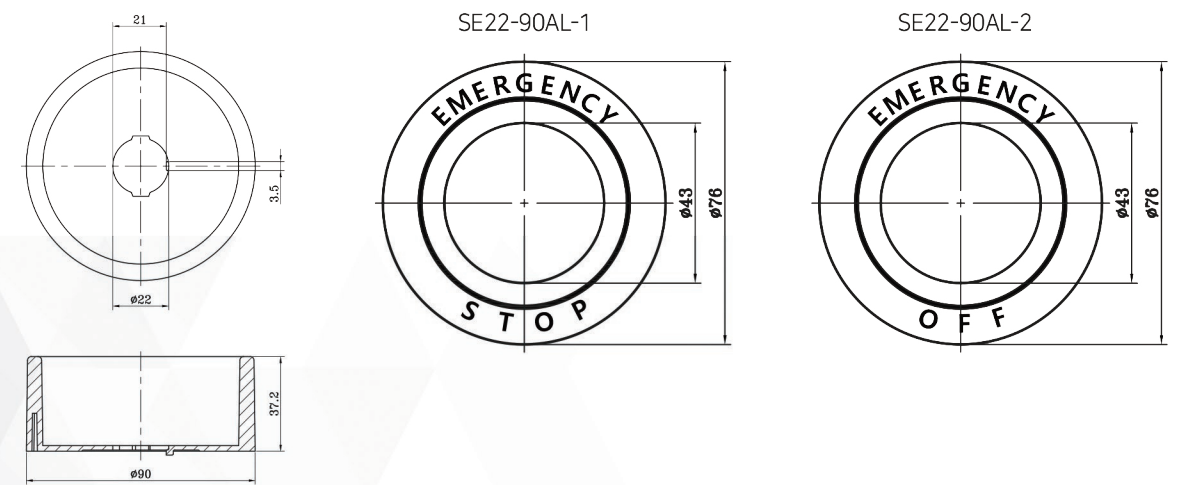
■ SE22-A-U1



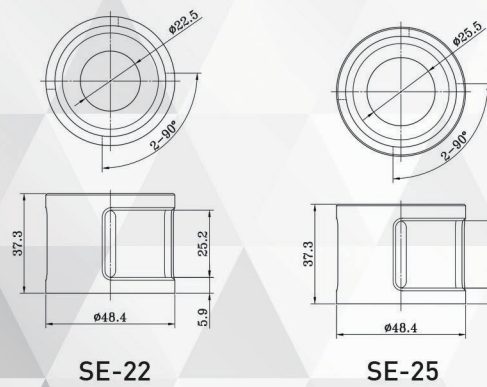
■ SE22-90



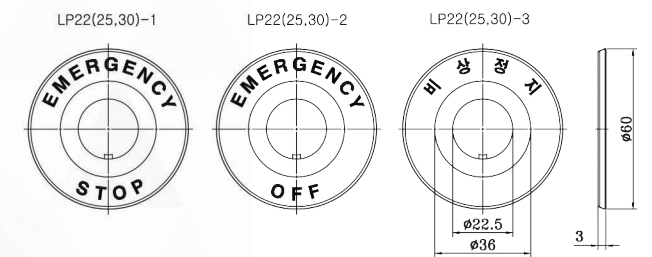
■ SE22-90AL



■ SE22



■ LP22



SE-22

SE-25

$\phi 60$

3

KSE

Enclose Box



FEATURE

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

SELECTION GUIDE

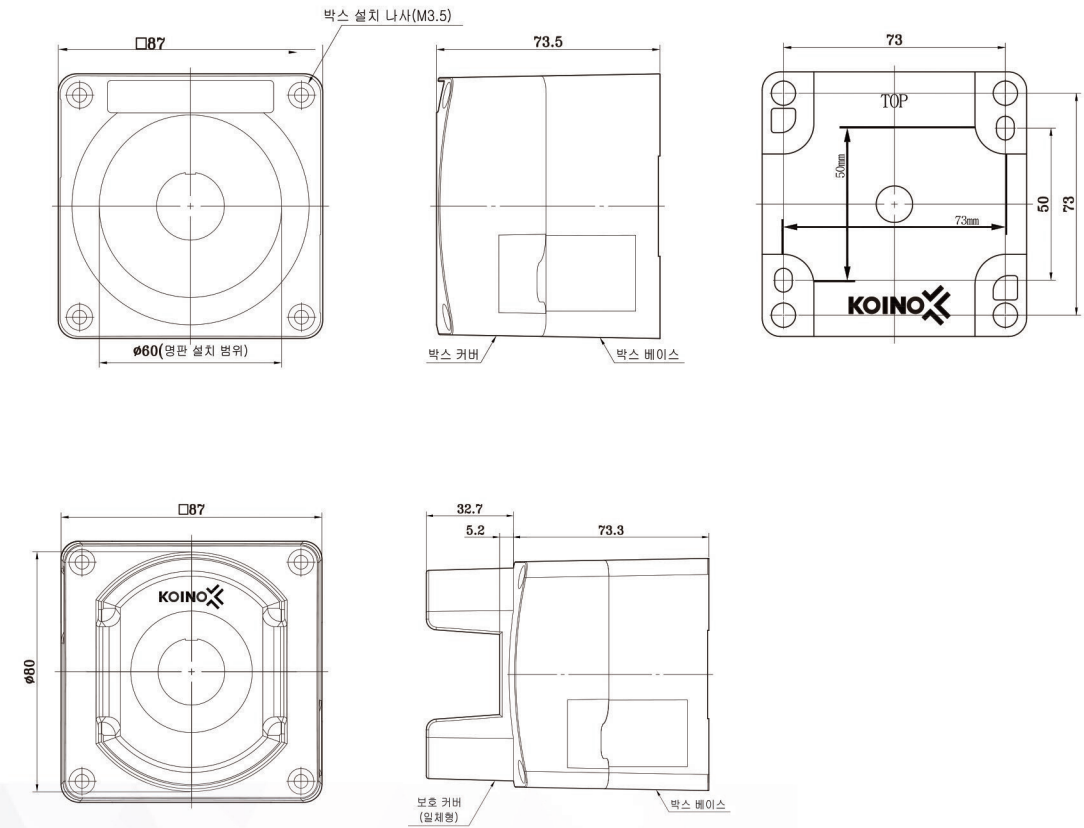
KSE - 221 S - 1

| | 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 |

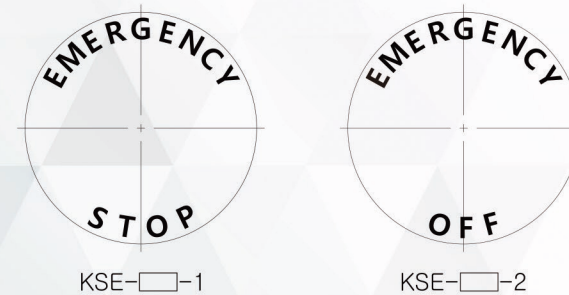
SPECIFICATION

| | 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 |

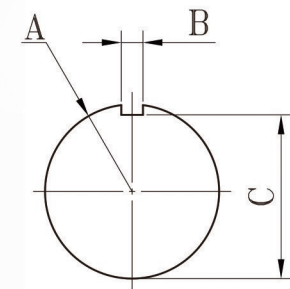
DIMENSIONS



MARKING



DIAMETER



| 형명 | 구분 | A | B | C |
|---------|----|-------------------------|-------------------|--------------------|
| KSE-221 | | $\phi 22.3^{+0.3}_{-0}$ | | $21.7^{+0.2}_{-0}$ |
| KSE-251 | | $\phi 25.3^{+0.3}_{-0}$ | $3.4^{+0}_{-0.2}$ | $24.3^{+0.3}_{-0}$ |
| KSE-301 | | $\phi 30.3^{+0.3}_{-0}$ | | $29.2^{+0.3}_{-0}$ |