ISO 9001 인증 업체
지식경제부 인증 부품소재전문기업

공작기계 관련제품개발 생산업체
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KEM



KOREA ELECTRICAL & MECHANICAL PARTS MANUFACTURER

CATALOGUE
vol.10



KEM Co., Ltd.

KEM 공작기계 관련제품개발 생산업체



(주)KEM본사 사옥 전경

CERTIFICATE
인증현황


ISO 9001:2015


SINGLE PPM


ENTERPRISE SPECIALIZING IN PARTS MATERIALS


RELIABILITY OIL COOLER


CE Certification OIL COOLER


RELIABILITY OIL SKIMMER


CE Certification OIL SKIMMER


CE Certification CODE SWITCH


CE Certification FOOT SWITCH


UL Certification FOOT SWITCH


S 안전인증서 SPD : KB3-80-480-4Y


UL Certification SPD : K3NR-20471


UL Certification SPARK KILLER : K3CRD-50500


UL Certification SPARK KILLER : KCR-10201


CE Certification CABLE GLAND

COMPANY HISTORY
회사연혁

2020 부산지방국세청장 표창 수상

2018 KBL(N) TYPE S, CE인증 획득
벤처기업, 이노비즈, 기업부설연구소 인정 획득

2017 우수자본재개발 대통령 표창수상

2016 서부산유통단지 신사옥 확장 이전
SPD : KB3-40-220-4Y S, CE인증 획득
FOOT SWITCH UL인증 획득
SPD : KB3-80-480-4Y S, CE인증 획득

2015 FOOT SWITCH : KF-H201 방수등급 IPX6

2014 제14회 공작기계인의 날
SURGE KILLER : K3NR-20471 UL 인증 획득
SPARK KILLER : KCR-10201 UL 인증 획득

2013 CODE SWITCH CE 인증 획득
삼성전자 베트남 공장 오일스키머 18,900대 납품
SPARK KILLER : K3CRD-50500 UL 인증 획득

2011 SINGLE PPM 인증 획득
LED 시그널 램프 ROHS 인증 획득
OIL SKIMMER CE 인증 획득
부품소재전문기업 확인서 획득
(주)한국전자에서 (주)KEM으로 상호 변경

2010 OIL SKIMMER 신뢰성 인증 획득

2009 SPARK KILLER 실용신안 등록

2008 김전동 신사옥 확장 이전

2007 지식경제부 부품소재전문기업 선정
FOOT SWITCH CE인증 획득

2006 ISO 9001 품질 경영 인증
OIL SKIMMER 실용신안 등록

2004 OIL COOLER 신뢰성 인증 획득

2003 계남동 신사옥 확장 이전
INTERFACE COVER 실용신안 등록

2002 OIL SKIMMER 개발 및 생산

2000 INTERFACE COVER 개발 및 생산

1998 OIL COOLER CE인증 획득

1996 CODE SWITCH 개발 및 생산

1995 SPD 개발 및 생산
SURGE KILLER 개발 및 생산

1994 FOOT SWITCH 개발 및 생산

1991 SPARK KILLER 의장 등록

1989 OIL COOLER 개발 및 생산

1988 한국전재공업사 설립
SPARK KILLER 개발 및 생산
ROTARY SWITCH 개발 및 생산

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EXHIBITION 참가전시회



2022 SIMTOS-KOREA



2018 SIMTOS-KOREA



2011 KOMAF-KOREA


2014 ACMEE-INDIA



2017 KOMAF-KOREA



2012 JIMTOF-JAPAN


2013 WIN-TURKEY



2012 SIMTOS-KOREA



KOREA ELECTRICAL & MECHANICAL PARTS MANUFACTURER KEM Co.,Ltd.

OIL SKIMMER

OIL KILLER
오일 킬러





특허청 실용신안특허 등록

오일킬러·오일스키머

오일 스키머?

수표면에 부상되어 있는 비수용성 기름을 분리하는데 목적이 있으며 윤활유, 모터유, 기계 작동유 및 기타 액체상태의 기름제거 등에 광범위하게 적용 됩니다.

특 징

벨트 타입이므로 다소의 수위 변동에 관계없이 지속적인 기름 분리가 가능하며, 특수 수지 벨트는 내식, 내충격성이 우수합니다.

용 도

절삭유, 절삭유속의 부유 기름, 열처리, 도장 공장 연삭기, 머시닝 센터, CNC 선반 등

OIL KILLER·OIL SKIMMER

Oil skimmer?

OIL SKIMMER is usually used to remove the floating non-aqueous oil. It is applied extensively to lubricating oil, motor oil, machine oil, machine operating oil and the other liquid oils.

Characteristics

Using corrosion-resisting and crashworthy belt, it can remove the oil continuously regardless of changes of the liquid level.

Use

Floating oils in the coolant, Heat treatment equipments, and Coating plants, Grinders, Machining centers, CNC lathes, etc.

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 감전 방지 및 기기 고장 방지를 위하여 모든 배선이 종료 될 때까지 전원을 투입하지 마십시오.
2. 제품의 탈착은 전원을 OFF한 후 조치 하십시오. 감전, 오작동, 고장의 원인이 됩니다.
3. 제품은 절대로 분해, 가공, 개선, 수리하지 마십시오. 이상 동작, 감전, 화재의 위험이 있습니다.
4. 제품의 파손 방지 및 고장 방지를 위하여 정격에 맞는 전압을 사용하여 주십시오.

주 의

1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
3. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시길 바랍니다.
4. 제품의 벨트(튜브)를 강제로 늘리지 마십시오.
5. 제품의 벨트(튜브) 교체 시 모터의 샤프트를 강제로 돌리지 마십시오.
6. 제품을 낙하시키는 등 충격을 가하지 마십시오.
7. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고 없이 변경될 수 있습니다.

Warning

1. In order to prevent receiving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
2. In any case, do not disassemble, process, reform, and repair this product. it might cause malfunctioning, electric shock or fire.
3. To separate the product, turn off the power supply first. It might cause electric shock, malfunctioning or breakdown.
4. To prevent breakage and malfunctioning of this product, appropriate power voltage should be supplied.

Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
3. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
4. Do not turn the belt(or the tube) of this product by force.
5. When changing the belt(or the tube) of this product, do not turn the shaft of a motor by force.
6. Avoid shocks such as dropping the product.
7. To improve the quality of the product, its colors and parts of design are subject to changes without a prior notice.

연결 타입 / Connector type



A-Plug (A type)



B-Plug (B type)



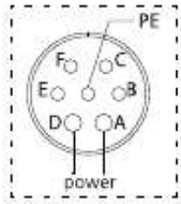
C-3 Pin plug



D-Direct connector



E-Elbow Connector



Connector

오일배출방향



A- Type



B- Type



C- Type

오일킬러·오일스키머

형 식

KOS-□□□□-□-□-□-□

①	벨트 폭	3	25mm	
		6	65mm	
		10	100mm	
		20	200mm	
	튜브직경(Ø)	T6	Ø6	
	디스크 외형 (Ø)	D300	300Ø	
		D400	400Ø	
		D500	500Ø	
②	벨트 축간길이 (표준)		25mm	65mm
		0	263mm	313mm
		5	357mm	448mm
		6	568mm	553mm
		7	683mm	668mm
	벨트 축간길이 (대형)		100mm	200mm
		1	313mm	
		3	370mm	
		5	437mm	
	튜브 길이	130	130mm	
		160	160mm	
		200	200mm	
③	오일배출방향	0	A	
		1	B	
		2	C	
④	벨트&튜브	무	바이톤 튜브	
		S	우레탄 벨트	
		*M	SUS 벨트 세척기용(온도 70°C)	
			메쉬타입 SUS 벨트	
⑤	벨트, 모터	무	플라스틱 모터커버	
		C	벨트커버	
		CB	벨트커버+모터 단자박스	
		PT	플라스틱 TUB커버	
		WT	스틸 TUB커버	
⑥	케이블 길이	1	1m	
		2	2m	
		3	3m	
		4	4m	
		5	5m	
⑦	사용 전압	1	단상 AC 110V	
		2	단상 AC 220V	
⑧	연결 타입	A	플러그 (110V)	
		B	플러그 (220V)	
		C	3핀 플러그	
		D	다이렉트 커넥터	
		E	엘보 커넥터	

- 제품 권장 사용온도 : 20~30℃
- 고온에서 장시간 사용시 벨트 변형이 올수 있습니다.
- □ 바탕은 튜브형 오일 스키머에만 적용되는 사항입니다.
- M-SUS 벨트는 KOS-351, KOS-601만 적용 가능합니다.

OIL KILLER·OIL SKIMMER

Type

KOS-□□□□-□-□-□-□

①	Belt width	3	25mm	
		6	65mm	
		10	100mm	
		20	200mm	
	Tube diameter(Ø)	T6	Ø6	
	Disk shape (Ø)	D300	300Ø	
		D400	400Ø	
		D500	500Ø	
②	Belt length (standard)		25mm	65mm
		0	263mm	313mm
		5	357mm	448mm
		6	568mm	553mm
		7	683mm	668mm
	Belt length (large)		100mm	200mm
		1	313mm	
		3	370mm	
		5	437mm	
	Tube length	130	130mm	
		160	160mm	
		200	200mm	
③	OIL Drain Direction	0	A	
		1	B	
		2	C	
④	Belt & Tube	None	Viton tube	
		S	Urethane belt	
		*M	SUS belt For Washers (temperature of 70°C)	
			Mesh SUS belt	
⑤	Belt, Motor	None	Plastic motor cover	
		C	Belt cover	
		CB	Belt cover + Motor terminal box	
		PT	Plastic TUB cover	
		WT	Steel TUB cover	
⑥	Cable length	1	1m	
		2	2m	
		3	3m	
		4	4m	
		5	5m	
⑦	Available voltage	1	Single phase AC 110V	
		2	Single phase AC 220V	
⑧	Connect type	A	Plug (110V)	
		B	Plug (220V)	
		C	3pin Plug	
		D	Direct Connect	
		E	Elbow Connect	

- Recommended using temperature : 20~30℃
- Long-term use in high temperature, the belt and the tube can be deformed.
- □ for tube oil skimmer.
- M-SUS belt is applicable for KOS-351, KOS-601 only.

오일킬러·오일스키머

OIL KILLER·OIL SKIMMER

벨트형 오일 스키머 - 부품 교체 방법

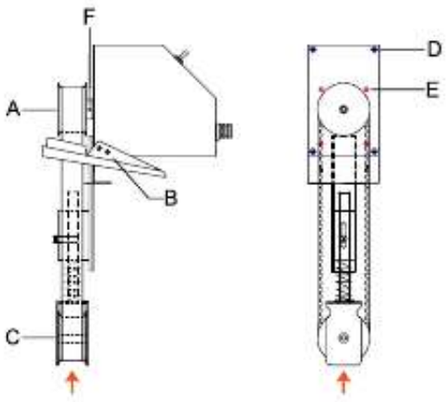


그림 ① (Picture ①)

• 벨트 교체 방법

1. 풀리(C)를 화살표(↑)와 같이 누르면서 풀리(A)에서부터 벨트를 분리해주세요.
2. 벨트 교체 후 반대 순서로 조립해 주세요.

• 모터 교체 방법

1. 풀리(C)를 화살표(↑)와 같이 누르면서 풀리(A)에서부터 벨트를 분리해주세요.
2. ⊕볼트(B) 2EA를 풀어 깔때기를 분리해 주세요.
3. 렌치 볼트(M5)(F)를 육각렌치를 이용하여 풀리(A)를 분리해 주세요.
4. 은색 볼트(D) 4EA를 풀어 케이스를 분리해 주세요.
5. 검은색 볼트(E) 4EA를 풀어 모터를 분리해 주세요.
6. 모터에 연결된 접지선과 전원선을 분리해 주세요.
7. 모터를 교체한 후 반대 순서로 조립해 주세요.

Belt type oil skimmer - How to change parts

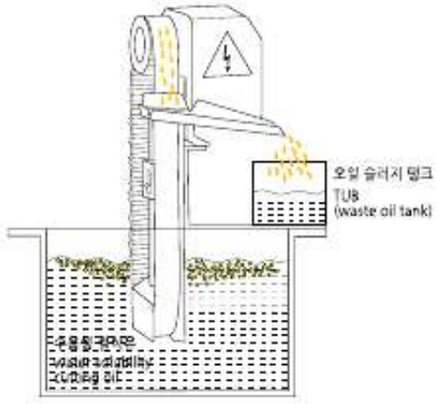


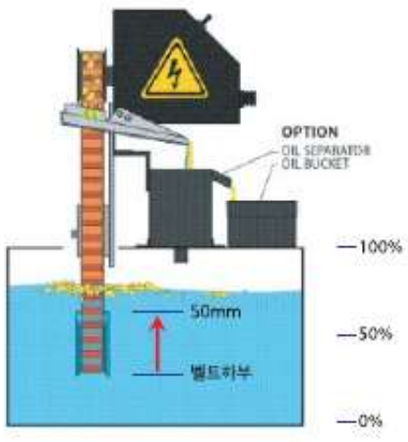
그림 ② (Picture ②)

• How to change belts

1. While pressing the pully(C) in the direction of the arrow(↑) and remove the belt from pully(A).
2. After change the new belt, please assemble the cover.

• How to change motor

1. While pressing the pully(C) in the direction of the arrow(↑) and remove the belt from pully(A).
2. Unscrewing the ⊕bolts(B) 2EA and remove the funnel.
3. Unscrewing the wrench bolts(M5)(F) and remove pully(A) use 5mm hex head wrench.
4. Unscrewing the sus bolts(D) 4EA and remove motor case.
5. Unscrewing the black color coated bolts(E) 4EA and remove the motor use screw driver and 8mm spanner.
6. Please disconnect the power line and ground wire are connected to the motor.
7. After change the new motor,please assemble in reverse order.



설치TIP(벨트 최적위치)Installation tip (belt optimal position)

*탱크높이(기준) : 탱크 높이의 50% 위치에 벨트 하부가 잠기도록 합니다.
Tank height (standard): The bottom of the belt is locked at 50% of the tank height.

*오일스키머(기존) : 탱크수면에서 벨트 하부 기준 50mm±10% 잠기면 최적상태 입니다.
Oil skimmer (standard): Optimal condition when the tank is locked 50mm ± 10% below the belt.

주의 / Attention

1. 탱크 내부 바닥면 위치에 벨트가 깊게 위치하면, 하부슬러지, 칩 등이 기름과 함께 올라와 유수분리기가 막힐 수 있습니다.
   If the belt is deeply positioned at the bottom of the tank, the bottom sludge, chips, etc. may come up with oil, and the oil separator may be blocked.
2. 유수분리기 막힘이 없도록 주기적인 청소가 필요합니다.
   Periodic cleaning is required to prevent blocked of the oil separator.
3. 탱크 수면 높이가 ±차이가 많다면, 탱크 수면 높이 최저기준으로 벨트하부가 잠기도록 합니다.
   If there is a large difference in the tank's water(cutting oil) level, make sure that the bottom of the belt is submerged to the lowest.

오일킬러·오일스키머

OIL KILLER·OIL SKIMMER

튜브형 오일 스키머 - 부품 교체 방법

tube type oil skimmer - How to change parts

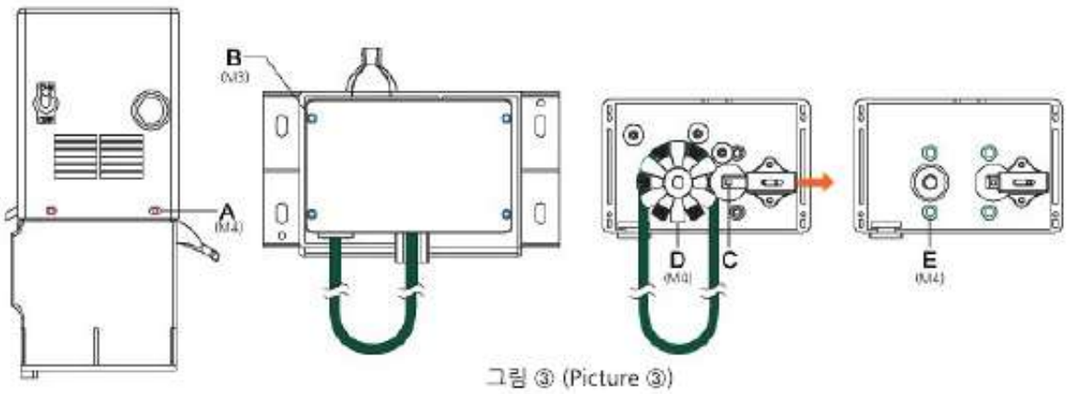


그림 ③ (Picture ③)

• 튜브 교체 방법

1. [+]볼트(A) 4EA를 풀어서 커버를 분리해 주세요.
2. [+]볼트(B) 4EA를 풀어서 몸체를 분리해 주세요.
3. 풀리(C)를 화살표 방향으로 밀면서 튜브를 교체해 주세요.
4. 튜브를 교체한 후 반대 순서로 조립해 주세요.

• 모터 교체 방법

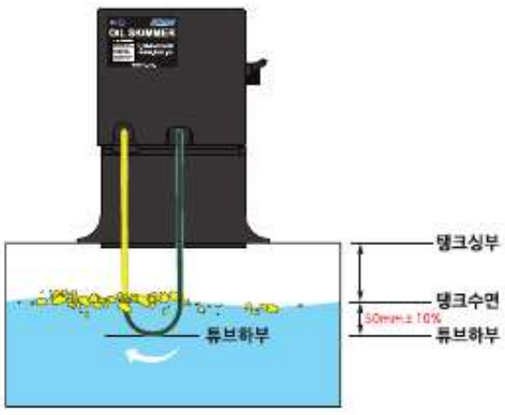
1. [+]볼트(A) 4EA를 풀어서 커버를 분리해 주세요.
2. [+]볼트(B) 4EA를 풀어서 몸체를 분리해 주세요.
3. 풀리(C)를 화살표 방향으로 밀면서 튜브를 분리해 주세요.
4. 렌치 볼트(M4) 육각렌치를 이용하여 풀리(D)를 분리해 주세요.
5. [+]볼트(E) 4EA를 풀어 모터를 분리해 주세요.
6. 모터에 연결된 접지선과 전원선을 분리해 주세요.
7. 모터를 교체한 후 반대 순서로 조립해 주세요.

• How to change tube

1. Unscrewing the [+]bolt(A) 4ea and remove cover.
2. Unscrewing the [+]bolt(B) 4ea and remove cover.
3. While pressing the pully(C) in the direction of the arrow and remove the tube from pully(A)
4. After change the new tube, please assemble the cover.

• How to change motor

1. Unscrewing the [+]bolt(A) 4ea and remove cover.
2. Unscrewing the [+]bolt(B) 4ea and remove cover.
3. Take apart the tube by pushing the pulley (C) in the direction of the arrow.
4. take apart the pulley(D) by using wrench bolt(M4) hexagon wrench
5. Unscrewing the [+]bolts(E) 4EA and remove the motor use screw driver and 8mm spanner.
6. Please disconnect the power line and ground wire are connected to the motor.
7. After change the new motor, please assemble in reverse order.



설치TIP(튜브 최적위치)
Installation tip (Tube optimal position)

*탱크수면에서 튜브하부 기준 50mm±10% 잠기면 최적상태입니다.
It is optimal when the tank surface is immersed 50mm ± 10% from the bottom of the tube.

주의 / Attention

1. 탱크 내부 바닥면 위치에 튜브가 깊게 위치하면, 하부슬러지, 칩 등이 기름과 함께 올라와 튜브를 손상시킬 수 있습니다.
   If the tube is deeply positioned at the bottom of the tank, the bottom sludge, chips, etc., can come up with oil and damage the tube.
2. 유수분리기 막힘이 없도록 주기적인 청소가 필요합니다.
   Periodic cleaning is required to prevent blocked of the oil separator.
3. 탱크 수면 높이가 ±차이가 많다면, 탱크 수면 높이 최저기준으로 튜브 하부가 잠기도록 합니다.
   If there is a large difference in the tank's water(cutting oil) level, make sure that the bottom of the tube is submerged to the lowest standard.

인터페이스 커버
INTERFACE COVER
정류기
POWER CONVERTOR
역 결상 계전기
PHASE MONITORING RELAY
풋 스위치
FOOT SWITCH
푸쉬 버튼 스위치
PUSH BUTTON SWITCH
코드 스위치
CODE SWITCH
노브
KNOB
로타리 스위치
ROTARY SWITCH
써지 보호 장치
SURGE PROTECTIVE DEVICE
스파크 킬러
SPARK KILLER
LED 인디케이터
LED INDICATOR
노 휴즈 브레이커 핸들
N.F.B HANDLE
케이블 그랜드
CABLE GLAND
팬 커버
FAN COVER
힌지/록커/키
HINGE/LOCKER/KEY
로드메타·알피엠메타
LOAD METER·RPM METER
기타 품목
THE OTHER PRODUCTS

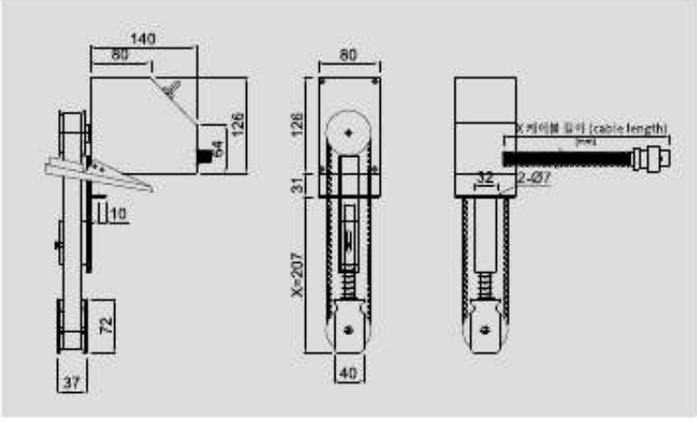
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

STANDARD TYPE

3□0S SERIES

모델명 / Model	KOS-300S	KOS-350S	KOS-360S	KOS-370S
X - 길이 / X - length (mm)	207	304	513	628
벨트 재질 / Material for belt	우레탄 (Urethane)			
오일 제거량 / Oil removal volume	2.5 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			

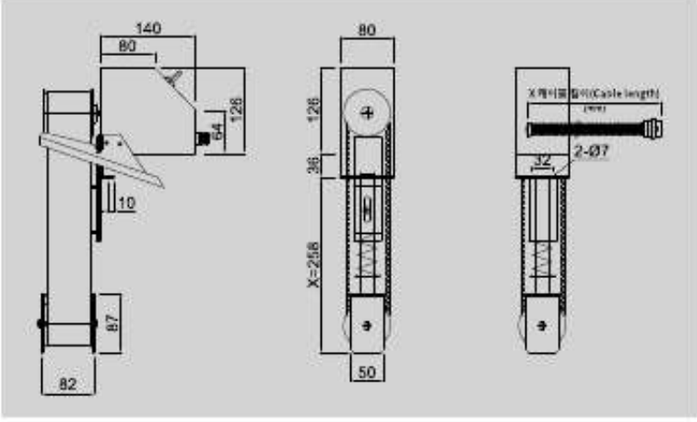




6□0S SERIES

모델명 / Model	KOS-600S	KOS-650S	KOS-660S	KOS-670S
X - 길이 / X - length (mm)	258	380	494	610
벨트 재질 / Material for belt	우레탄 (Urethane)			
오일 제거량 / Oil removal volume	5 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			





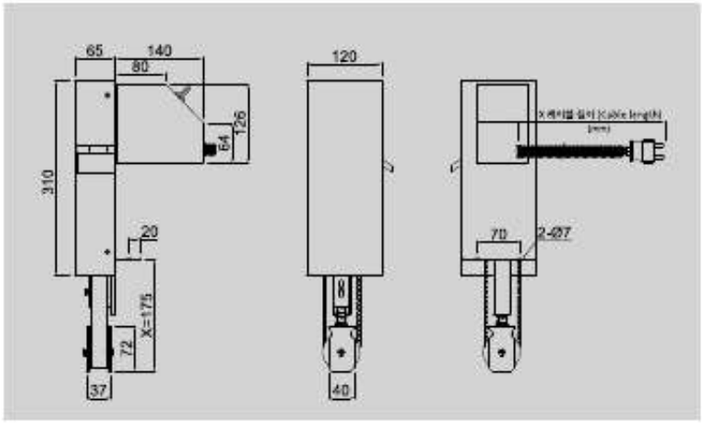
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

COVER TYPE

3□1SC SERIES

모델명 / Model	KOS-351SC	KOS-361SC	KOS-371SC
X - 길이 / X - length (mm)	175	394	500
벨트 재질 / Material for belt	우레탄 (Urethane)		
오일 제거량 / Oil removal volume	2.5 ℓ/h		
전원 / Power	1 Phase AC(110V, 220V) 60Hz		

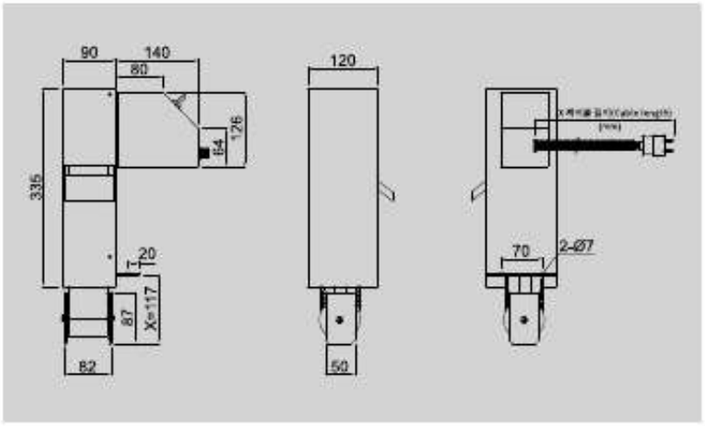




6□1SC SERIES

모델명 / Model	KOS-601SC	KOS-651SC	KOS-661SC	KOS-671SC
X - 길이 / X - length (mm)	117	240	355	469
벨트 재질 / Material for belt	우레탄 (Urethane)			
오일 제거량 / Oil removal volume	5 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			





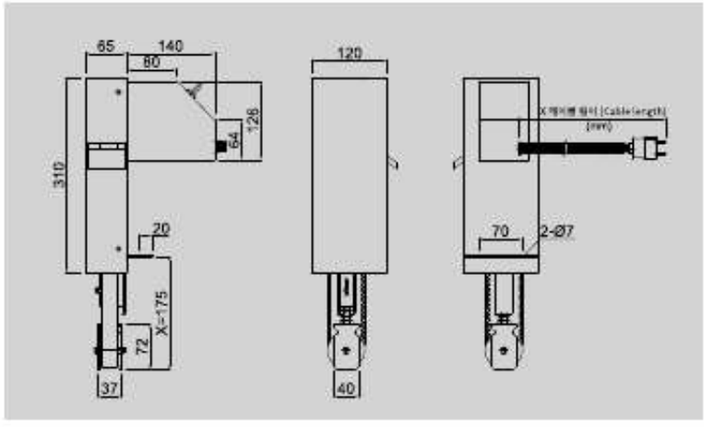
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

COVER TYPE

351MC SERIES

모델명 / Model	KOS-351MC	KOS-351MCB
X - 길이 / X - length (mm)	175	
벨트 재질 / Material for belt	스테인리스 (Stainless)	
오일 제거량 / Oil removal volume	2.5 ℓ/h	
전원 / Power	1 Phase AC(110V, 220V) 60Hz	

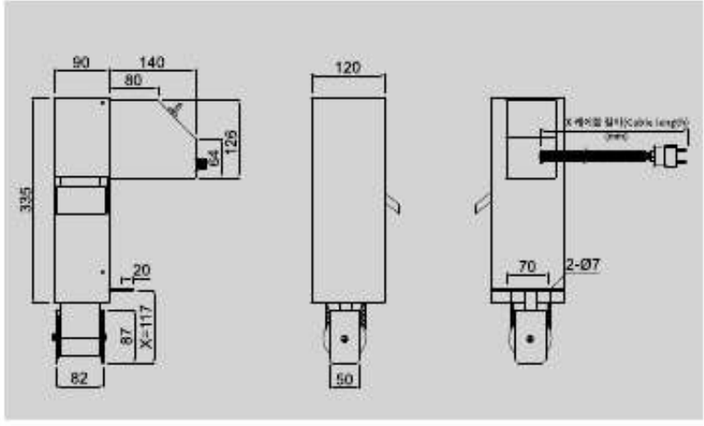




601MC SERIES

모델명 / Model	KOS-601MC	KOS-601MCB
X - 길이 / X - length (mm)	117	
벨트 재질 / Material for belt	스테인리스 (Stainless)	
오일 제거량 / Oil removal volume	5ℓ/h	
전원 / Power	1 Phase AC(110V, 220V) 60Hz	





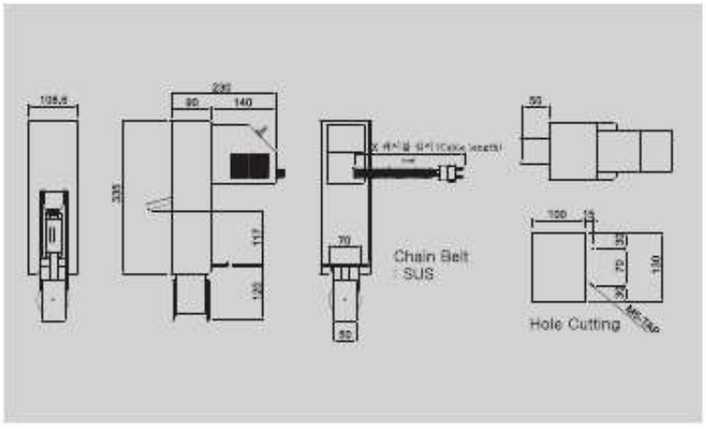
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

COVER TYPE

602MC NEW

모델명 / Model	KOS-602MC
X - 길이 / X - length (mm)	120
벨트 재질 / Material for belt	M=메쉬타입 스테인리스 벨트(Mesh Stainless Belt)
오일 제거량 / Oil removal volume	3ℓ/h
전원 / Power	1 Phase AC(110V, 220V) 60Hz

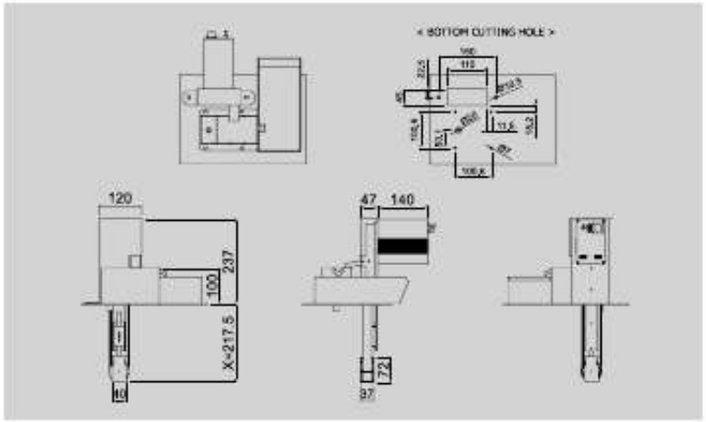




352SCJ SERIES

모델명 / Model	KOS-352SCJ1	KOS-352SCJ2
X - 길이 / X - length (mm)	217.5	197.5
벨트 재질 / Material for belt	우레탄 (Urethane)	
오일 제거량 / Oil removal volume	2.5 ℓ/h	
전원 / Power	1 Phase AC(110V, 220V) 60Hz	





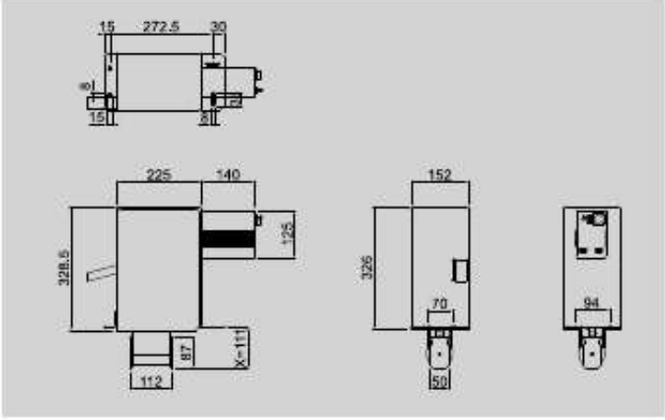
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

COVER TYPE

10□2SC SERIES

모델명 / Model	KOS-1012SC	KOS-1032SC	KOS-1052SC	KOS-1002SC
X - 길이 / X - length (mm)	111	168	235	265
벨트 재질 / Material for belt	S = 우레탄 (Urethane)			
오일 제거량 / Oil removal volume	13.6 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			

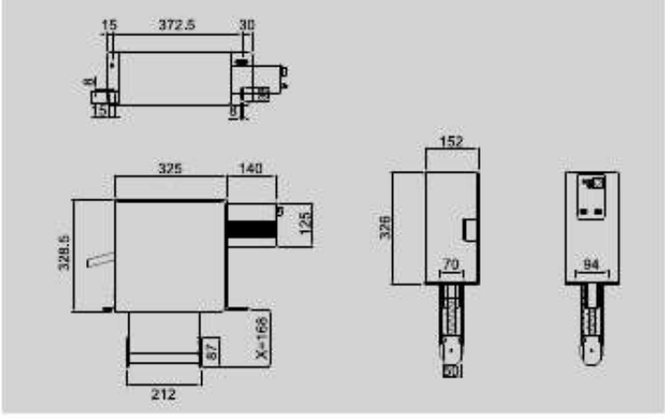




20□2SC SERIES

모델명 / Model	KOS-2012SC	KOS-2032SC	KOS-2052SC
X - 길이 / X - length (mm)	111	168	235
□- 벨트 재질 / Material for belt	S = 우레탄 (Urethane)		
오일 제거량 / Oil removal volume	21.3 ℓ/h		
전원 / Power	1 Phase AC(110V, 220V) 60Hz		





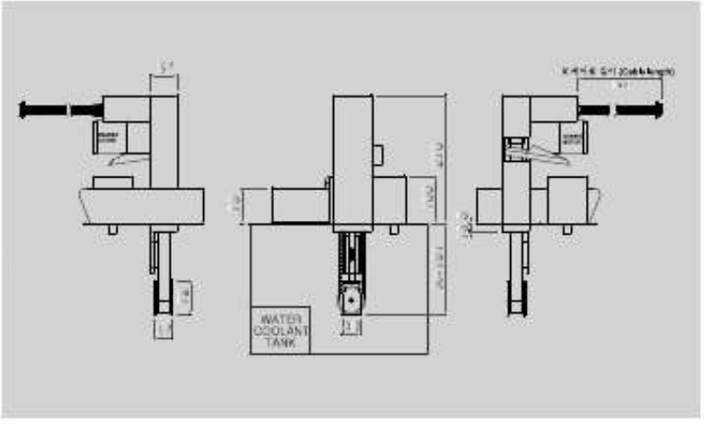
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

TERMINAL BOX TYPE

3□0SCB SERIES

모델명 / Model	KOS-350SCB	KOS-360SCB	KOS-370SCB
X - 길이 / X - length (mm)	191	402	517
벨트 재질 / Material for belt	우레탄 (Urethane)		
오일 제거량 / Oil removal volume	2.5 ℓ/h		
전원 / Power	1 Phase AC(110V, 220V) 60Hz		

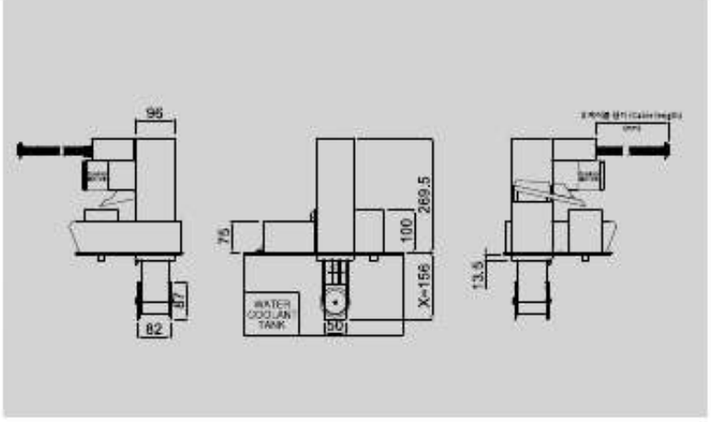




6□0SCB SERIES

모델명 / Model	KOS-600SCB	KOS-650SCB	KOS-660SCB	KOS-670SCB
X - 길이 / X - length (mm)	156	291	396	509
벨트 재질 / Material for belt	우레탄 (Urethane)			
오일 제거량 / Oil removal volume	5 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			





오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

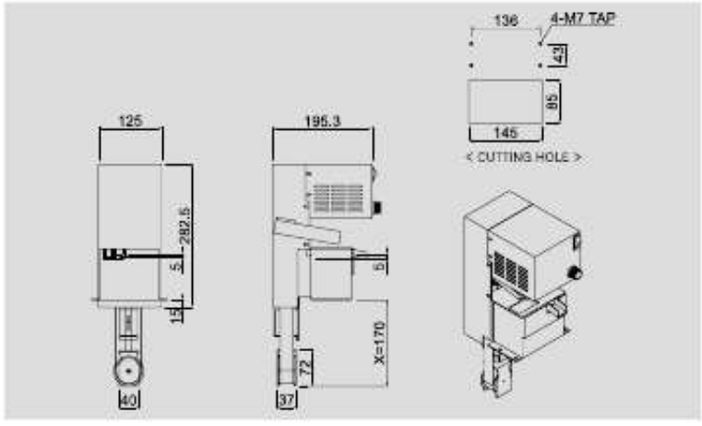
TUB COVER TYPE

3□0□WT SERIES

모델명 / Model	KOS-350SWT	KOS-360SWT	KOS-370SWT
X - 길이 / X - length (mm)	170	379	494
□- 벨트 재질 / Material for belt	S = 우레탄 (Urethane), M = 스테인리스 (Stainless)		
오일 제거량 / Oil removal volume	2.5 ℓ/h		
전원 / Power	1 Phase AC(110V, 220V) 60Hz		

M-스테인리스 벨트는 KOS-350, KOS-600만 적용 가능합니다. M-Stainless belt is applicable for KOS-350, KOS-600 only.



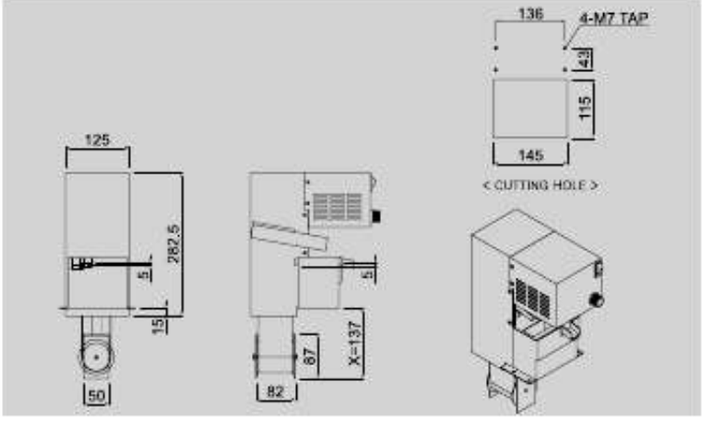


6□0□WT SERIES

모델명 / Model	KOS-600SWT	KOS-650SWT
X - 길이 / X - length (mm)	137	259
□- 벨트 재질 / Material for belt	S = 우레탄 (Urethane), M = 스테인리스 (Stainless)	
오일 제거량 / Oil removal volume	5 ℓ/h	
전원 / Power	1 Phase AC(110V, 220V) 60Hz	

M-스테인리스 벨트는 KOS-350, KOS-600만 적용 가능합니다. M-Stainless belt is applicable for KOS-350, KOS-600 only.





오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

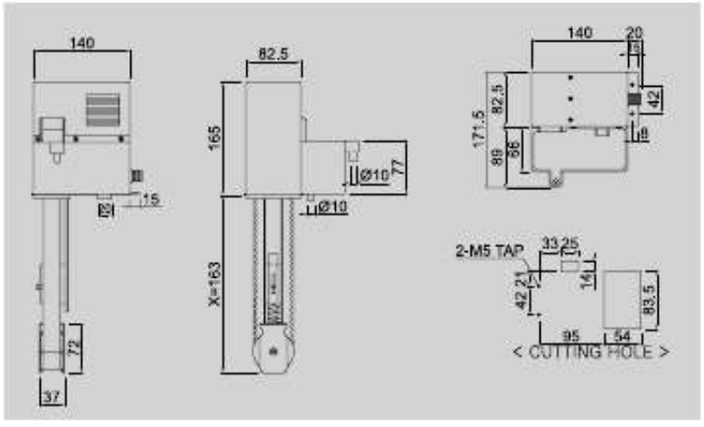
TUB COVER TYPE

3□0 SPT SERIES

모델명 / Model	KOS-300SPT	KOS-350SPT	KOS-360SPT	KOS-370SPT
X - 길이 / X - length (mm)	163	260	469	584
벨트 재질 / Material for belt	우레탄 (Urethane)			
오일 제거량 / Oil removal volume	2.5 ℓ/h			
전원 / Power	1 Phase AC(110V, 220V) 60Hz			

M-스테인리스 벨트는 KOS-350, KOS-600만 적용 가능합니다. M-Stainless belt is applicable for KOS-350, KOS-600 only.



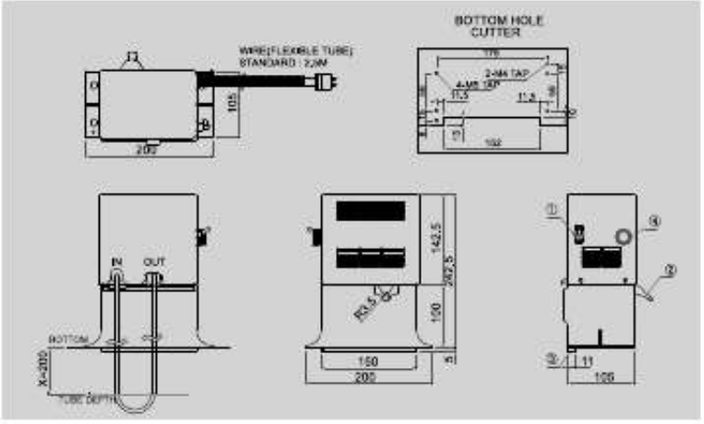


TUBE TYPE

T6□□0 SERIES

모델명 / Model	KOS-T6130	KOS-T6160	KOS-T6200
X - 튜브 유효 깊이 / X - Tube depth (mm)	130	160	200
튜브 재질 / Material for tube	바이톤 (Viton)		
오일 제거량 / Oil removal volume	1.2 ℓ/h		
전원 / Power	1 Phase AC(110V, 220V) 60Hz		





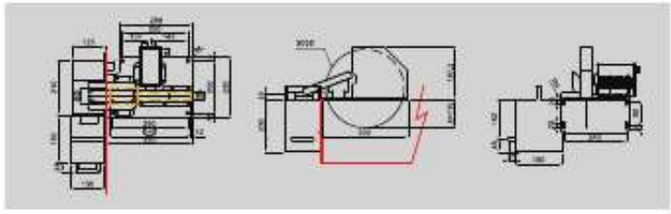
오일킬러·오일스키머 OIL KILLER·OIL SKIMMER

DISK TYPE

KOS-D300

모델명 / Model	KOS-D300
X - 길이 / X - length (mm)	110
디스크 재질 / Material for DISK	스테인리스 (Stainless)
오일 제거량 / Oil removal volume	25ℓ/h
전원 / Power	1 Phase AC(110V, 220V) / 3 Phase AC(220V) 60Hz

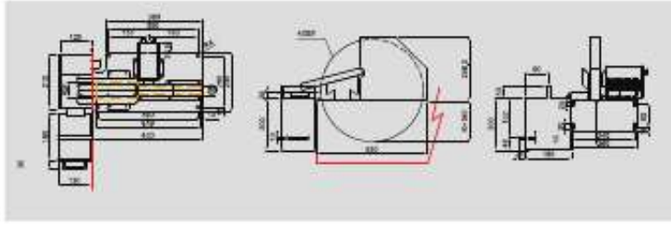




KOS-D400

모델명 / Model	KOS-D400
X - 길이 / X - length (mm)	160
디스크 재질 / Material for DISK	스테인리스 (Stainless)
오일 제거량 / Oil removal volume	35ℓ/h
전원 / Power	1 Phase AC(110V, 220V) / 3 Phase AC(220V) 60Hz

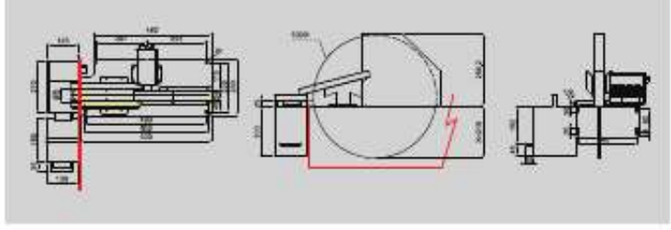




KOS-D500

모델명 / Model	KOS-D500
X - 길이 / X - length (mm)	210
디스크 재질 / Material for DISK	스테인리스 (Stainless)
오일 제거량 / Oil removal volume	55ℓ/h
전원 / Power	1 Phase AC(110V, 220V) / 3 Phase AC(220V) 60Hz

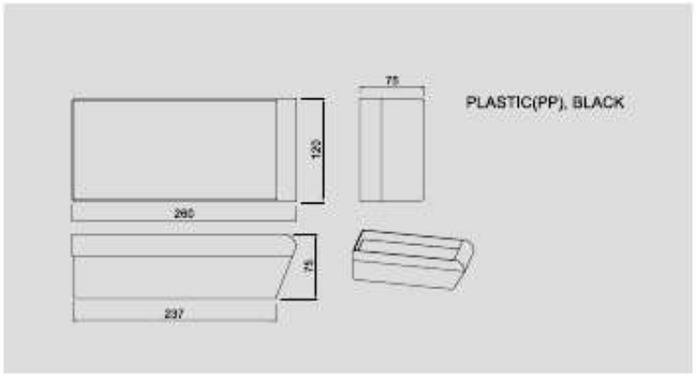




오일킬러(OPTION) OIL KILLER(OPTION)

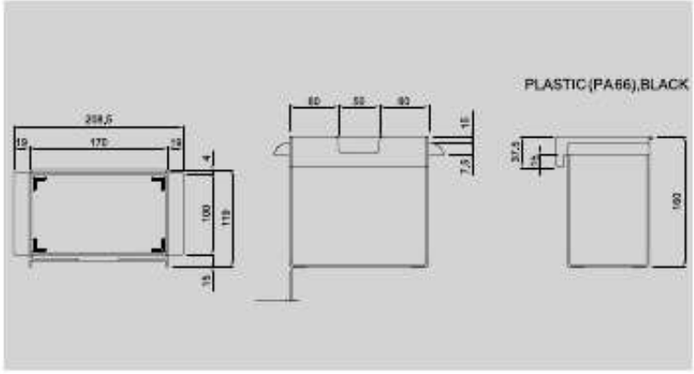
OIL BUCKET(P)





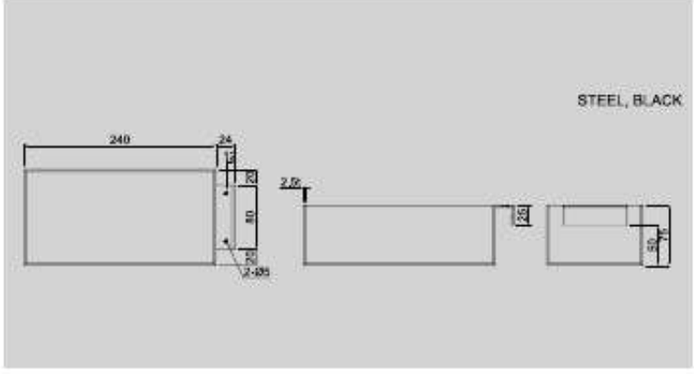
OIL BUCKET(P2)





OIL BUCKET(S1)



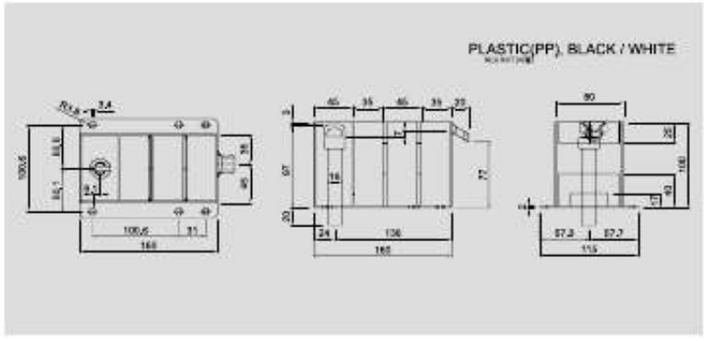


오일킬러(OPTION) OIL KILLER(OPTION)

OIL SEPARATOR(P)

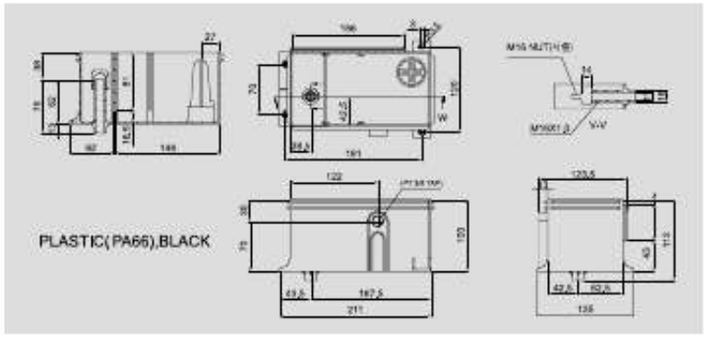


KOS-□□○ SC,SCB,MC 타입만 가능



OIL SEPARATOR(P2)

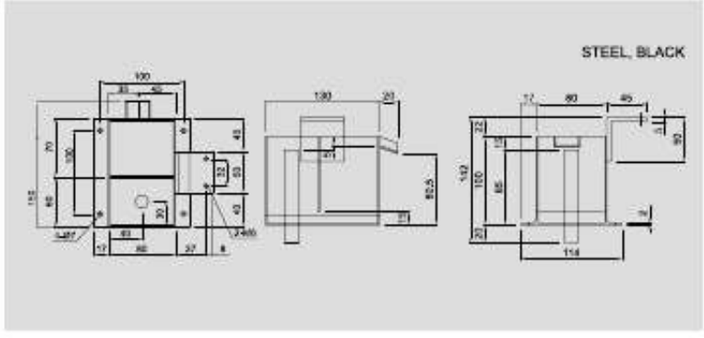




OIL SEPARATOR(S)

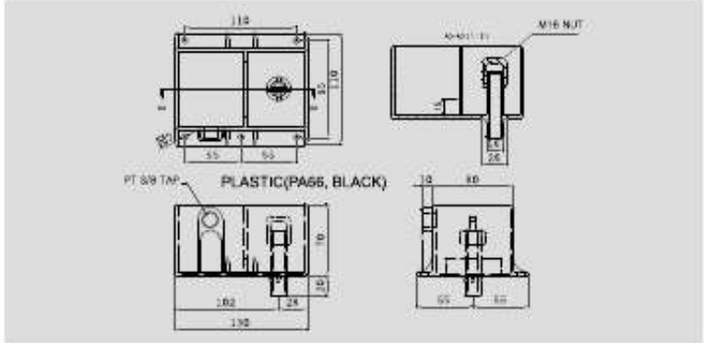


KOS-□□○ S타입만 가능



OIL SEPARATOR(P3)





INTERFACE COVER
인터페이스 커버



특허청 실용신안특허 등록

인터페이스 커버

특 징

1. 다이캐스팅과 플라스틱(난연) 제품이 있어 기계 관련 장비에 널리 사용되고 있습니다.
2. 다이캐스팅 사출제품은 절삭유, 오일, 화학약품 등 열악한 작업환경에 사용하기 적합합니다.
3. D-SUB(RS-232C), AC 콘센트(110V, 220V), 8Pin LAN (RJ-45), USB(A, B type) 등 원하시는 사양을 다양하게 조합할 수 있어 경제적입니다.
4. 커버 사양이 다양하여 선택의 폭이 넓습니다. plastic(ivory), transparent, diecasting(ivory,dark gray)
5. 기계 제어반의 개폐 없이 인터페이스 커버를 통해 PLC 제어가 가능함으로 작업장 내 공간 활용도가 높으며, 제어반 내 분진이 들어가지 않아 관리가 용이합니다.

용 도

공작기계, 자동화 기계, 통신기기, 목공기계 등
노트북을 자주 사용하는 사무 책상 및 도서관 책상 등

형 식

K□□-□-□□
① ② ③ ④ ⑤

①	형식	IC	플라스틱(난연)
		ICB	플라스틱(난연)
		ID	플라스틱(난연)+ 찬넬형 콘센트
		ICS	플라스틱(난연)
		DU	다이캐스팅
		FP	다이캐스팅
		DUB	다이캐스팅
		ICD	다이캐스팅
②	커버 종류	T	투명 플라스틱(난연)
③	콘센트 전압	무	없음
		100	110V
		200	220V
		MT	100~250V 공용
④	콘넥터	무	없음
		9	9핀
		15	15핀
		25	25핀
⑤	데이터	무	없음
		L	8핀 LAN
		UA	USB A
		UB	USB B
		UAB	USB A+B
		UA/B	USB A(앞)/B(뒤)
		UB/A	USB B(앞)/A(뒤)

INTERFACE COVER

Characteristics

1. Owing to carrying the diecasting and plastic(Flame Resistance) product It is widely used in equipments related with machines.
2. As a diecasting injection product, it is suitable to use even in a coarse working environment such as with cutting oil, oil and chemicals.
3. The product which is able to combine (RS-232C)D-SUB, (110V,220V) AC CONSENT, (RJ-45)8Pin LAN, USB, etc is economical.
4. Various types of cover provide you with a wider variety of choices : plastic(ivory), transparent, diecasting(ivory,dark gray)
5. Without machine's control door opening and closing, it's availble to operating PLC consequently, it makes better use of a space and also is easy to keep machine's control clean.

Use

For manufacturing machines, wood working machines, automation machines, communication machines, etc. For the desks in office or library where lap top computers are used often.

Type

K□□-□-□□
① ② ③ ④ ⑤

①	Type	IC	Plastic(Flame Resistance)
		ICB	Plastic(Flame Resistance)
		ID	Plastic(Flame Resistance)+ Channel concentric plug
		ICS	Plastic(Flame Resistance)
		DU	Diecasting
		FP	Diecasting
		DUB	Diecasting
		ICD	Diecasting
②	Cover type	T	Transparent Plastic (Flame Resistance)
③	Consent Voltage	None	None
		100	110V
		200	220V
		MT	100~250V Multi
④	Connector	None	None
		9	9 Pin
		15	15Pin
		25	25Pin
⑤	Data	None	None
		L	8 Pin LAN
		UA	USB A
		UB	USB B
		UAB	USB A+B
		UA/B	USB A(front)/B(Back)
		UB/A	USB B(front)/A(Back)

◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

타입별 커버 / Type of cover

Type	KIC	KICT	KICB	KICS	KFP	KFPT
Picture						
Cover	Opaque Plastic	Transparent Plastic	Transparent Plastic	Transparent Plastic	Opaque Diecasting	Transparent Plastic
Bottom	Opaque Plastic	Opaque Plastic	Opaque Plastic	Opaque Plastic	Opaque Diecasting	Opaque Diecasting

Type	KDU	KDUT	KDUB	KID	KICD	KICDT
Picture						
Cover	Opaque Diecasting	Transparent Plastic	Opaque Diecasting	Transparent Plastic	Opaque Diecasting	Transparent Plastic
Bottom	Opaque Diecasting	Opaque Diecasting	Opaque Diecasting	Opaque Plastic	Opaque Diecasting	Opaque Diecasting

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 반드시 판넬에 취부하여 사용하십시오.
   감전, 오작동, 고장의 원인이 됩니다.
2. 감전방지 및 기기 고장방지를 위하여 모든 배선이 종료될 때까지 전원을 투입하지 마십시오.
3. 가스 근처에서 사용금지
   방폭구조가 아니므로 가연성, 폭발성 가스가 있는 장소에서 사용하지 마십시오.

주 의

1. 주문하신 사양과 일치하는지 확인하십시오.
2. 실외에서는 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시기 바랍니다.
5. 청소 시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른수건이나 압축공기 등으로 청소하시기 바랍니다.
6. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고없이 변경될 수 있습니다.

Warning

1. In any case, it should be used while being attached on the panel. It might cause electric shock, Malfunctioning or breakdown.
2. In order to prevent receiving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
3. Do not use near the gas. It is not explosion-proof, therefore, do not use near the inflammable or explosive gas.

Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it nearby corrosive gas(especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
5. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
6. The colors or parts of design of this product are subject to changes without a prior notice in order to improve the quality of the product.

인터페이스 커버 INTERFACE COVER

KIC TYPE

KIC T - 100 - 15 UA
① ② ③ ④



◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

KICB TYPE

KICB - MT - 9 - L UA
1 2 3 4

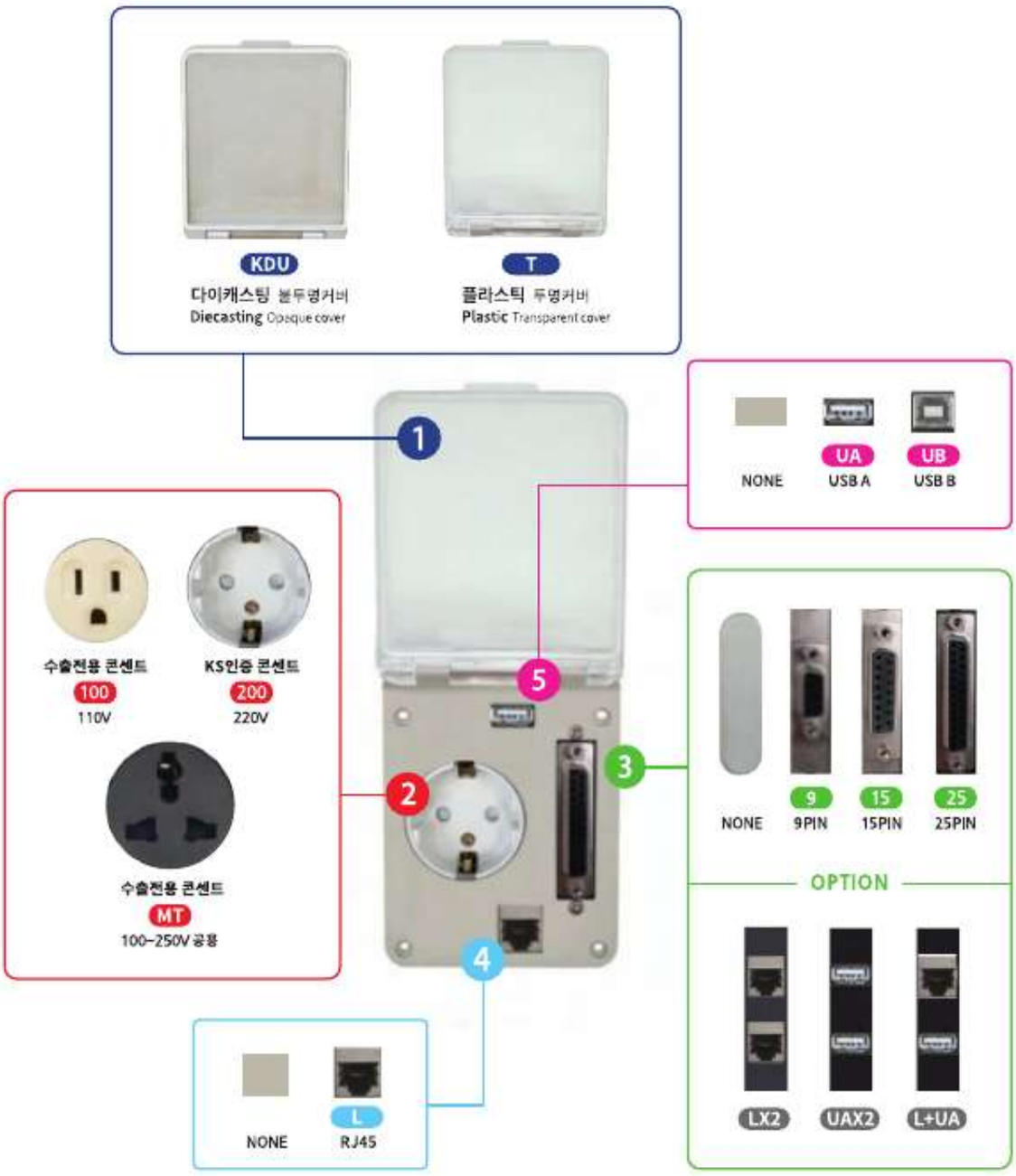


◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

KDU TYPE

KDU [T] - 200 - 25 [L] [UA]
① ② ③ ④ ⑤

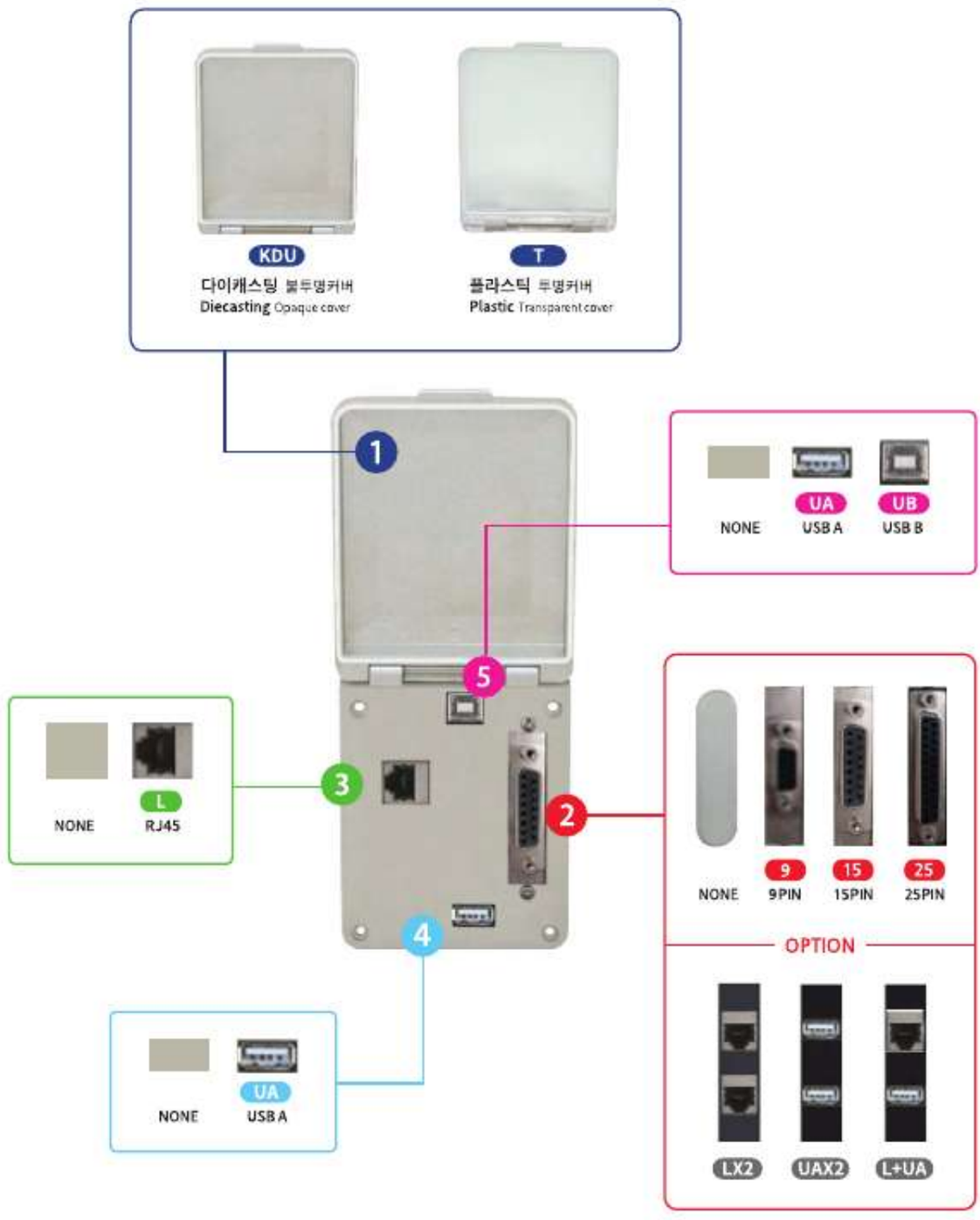


◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

KDU TYPE

KDU T - 15 L UA B
① ② ③ ④ ⑤

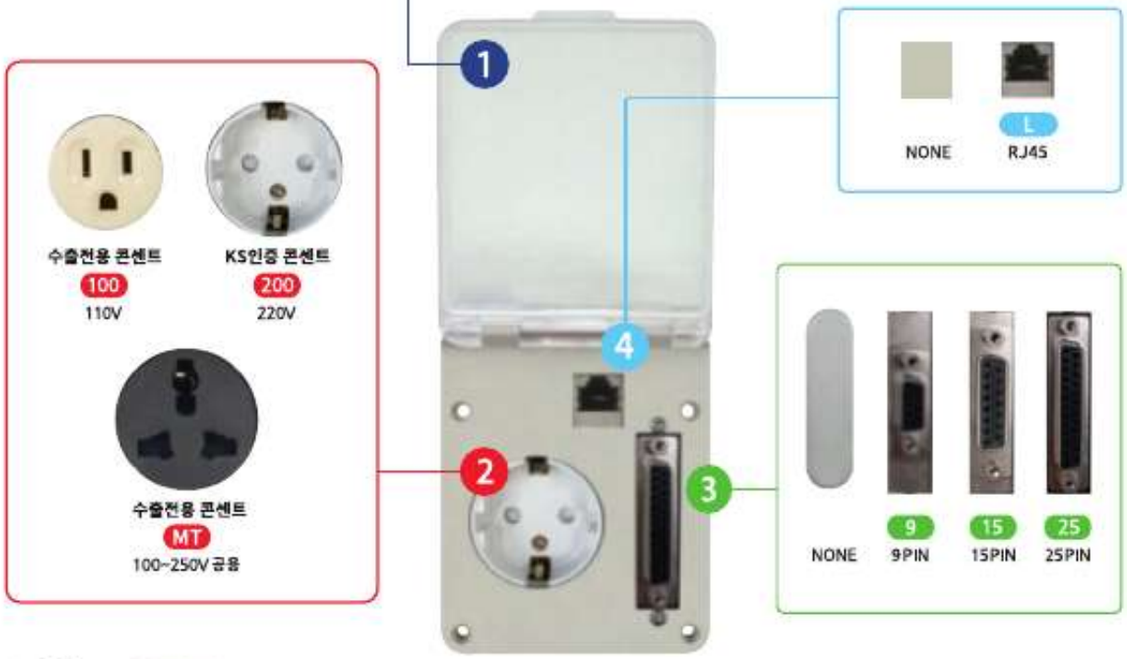


인터페이스 커버 INTERFACE COVER

KICD TYPE

KICD □ - 200 - 25 L
① ② ③ ④







• DG타입은
주문형입니다.

◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

KICD-9



KICD-9L



KICD-15



KICD-15L



• DG타입은 주문형입니다.

KICD-25



KICD-25L



KICD-LX2



KICD-L



KICD-MT-L



KICD-MT-9L



KICD-MT-15L



KICD-MT-25L



인터페이스 커버 INTERFACE COVER

KFP TYPE

KFP T - 25 L UA
1 2 3 4





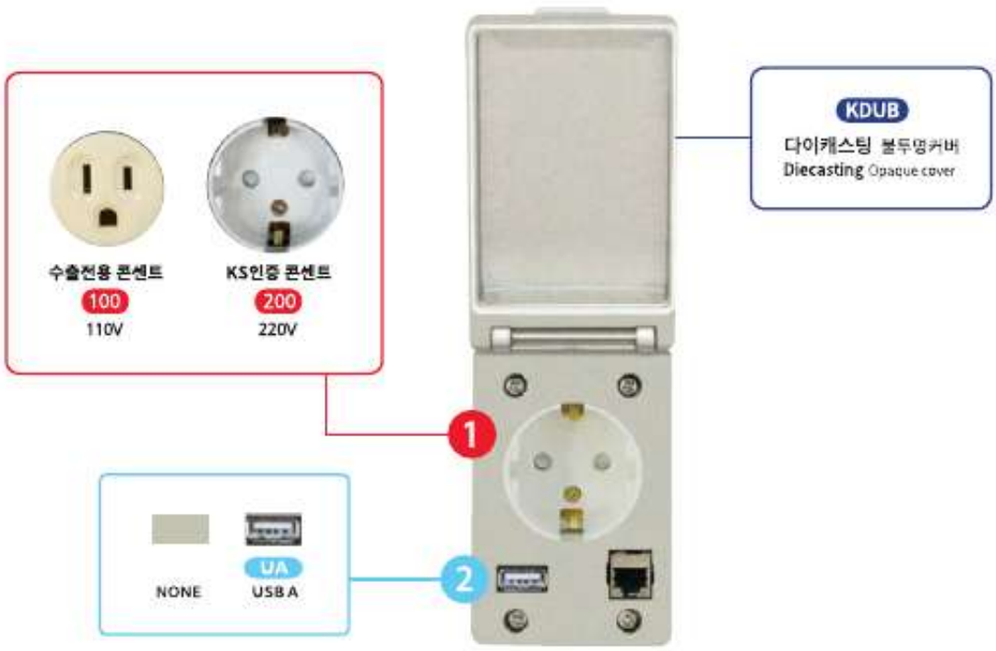


◎ 110V 콘센트 제품은 해외(미국, 일본 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ MT(100~250V 공용) 콘센트 제품은 해외(유럽, 동남아시아 등) 수출 전용 제품으로 국내사용이 불가합니다.
◎ 110V및 MT콘센트 제품 주문시 최종 사용자의 수출확인관련서류가 필요합니다.

인터페이스 커버 INTERFACE COVER

KDUB TYPE

KDUB - S 200 - L UA
① ②



KICS TYPE

KICS-MT KICS-L KICS-UA KICS-UC



KID TYPE

KID-200



OPTION TYPE

220V CONCENT COVER



MT CONCENT COVER



파워 컨버터

POWER CONVERTOR
정류기



정류기 POWER CONVERTOR

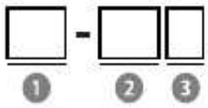
용 도

- 호이스트 전자 브레이크 전원용
- 전자 클러치 전원용
- 전자석 전원용
- 공작기계
- 자동화 기계

Use

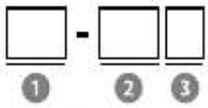
- Hoist electronic break for power
- Electronic clutch for power
- Electronic magnet for power
- Machine tools
- Automatic machines

형 식



		KEM	반파 정류기
①	형식	SR	
		SB	전파 정류기
②	전류	10	1A
		20	2A
		30	3A
		60	6A
		100	10A
		200	20A
		300	30A
③	결선 방식	무	전선
		T	단자
		S	스위치

Type



		KEM	Half wave rectifier
①	Type	SR	
		SB	All wave rectifier
②	Current	10	1A
		20	2A
		30	3A
		60	6A
		100	10A
		200	20A
		300	30A
③	Wire fixed	None	Wire
		T	Terminal
		S	Switch

출력 형식 / Type of output

	형식 (Type)	IN		OUT
①	반파 정류기 (Half wave Rectifier)	AC 100V AC 200V	→	DC 45V DC 90V
②	전파 정류기 (All wave Rectifier)	AC 110V AC 220V	→	DC 100V DC 200V

* SR-30, SR-30T, SR-60, SR-60T 제품은 380V용[AC 380V → DC 175V] 제품으로 주문 가능합니다.

정류기 POWER CONVERTOR

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 반드시 판넬에 취부하여 사용 하십시오. 감전, 오작동, 고장의 원인이 됩니다.
3. 감전방지 및 기기 고장 방지를 위하여 모든 배선이 종료될 때까지 전원을 투입하지 마십시오.
4. 지정한 정격 이외로 사용시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
5. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지 확인 하십시오.
6. 통전 중에 본 기기를 분해하거나 단자에 접촉하지 마십시오. 감전, 오작동의 위험이 있습니다.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In any case, it should be used while being attached on the panel. It might cause electric shock, malfunctioning or breakdown.
3. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
4. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
5. Before turning on the power, make sure whether the wires are connected correctly.
6. Do not disassemble this product or touch the terminals when the electricity is on. It might cause electric shock or malfunctioning of the product.

주 의

1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 기연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시기 바랍니다.
5. 청소시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른 수건이나 압축공기 등으로 청소를 하시기 바랍니다.
6. 제품 부착에 관하여 다음과 같은 장소를 피하여 주십시오.
   - 본체에 직접 진동, 충격이 가하여지는 장소
   - 티끌과 먼지, 염분, 철분이 많은 장소
   - 직사일광을 받는 장소
7. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고없이 변경될 수 있습니다.

Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it in a place where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
5. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
6. Avoid the following places when installing the product.
   - Place where the main body can receive shock or vibration directly.
   - Place with a lot of dusts, dirts, salts or irons.
   - Place exposed with a direct sunlight.
7. The colors or parts of design of this product are subject to changes without a prior notice in order to improve the quality of the product.

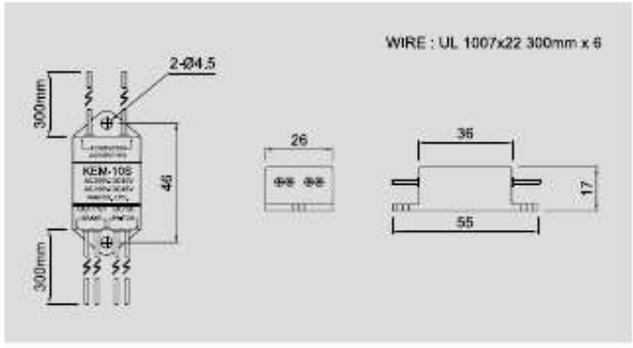
4_PowerConvertor.indd 59 2020/07/10 14:13:40

반파 정류기 POWER CONVERTOR

KEM TYPE

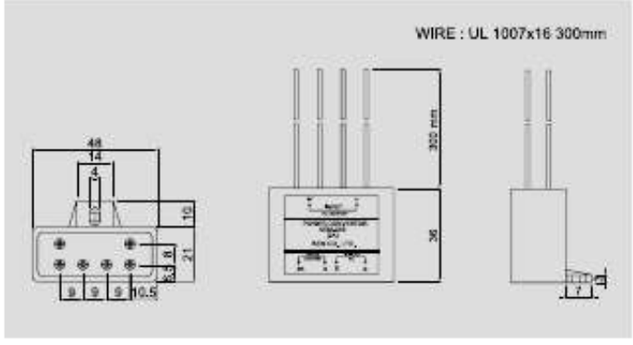
KEM-10S





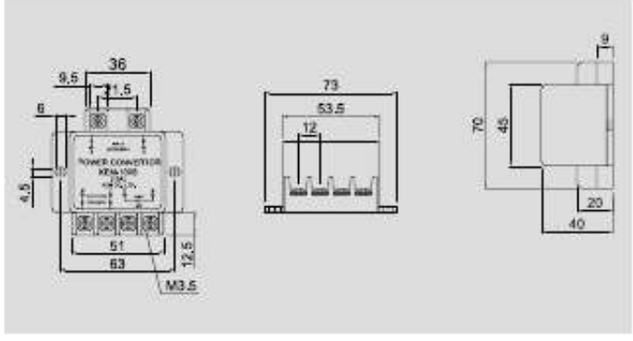
KEM-20S





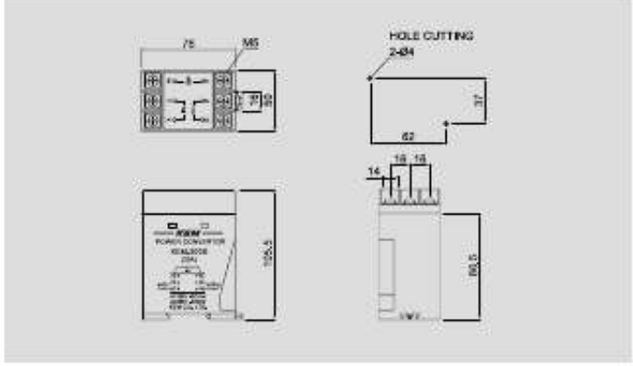
KEM-100S / KEM-200S





KEM-300S





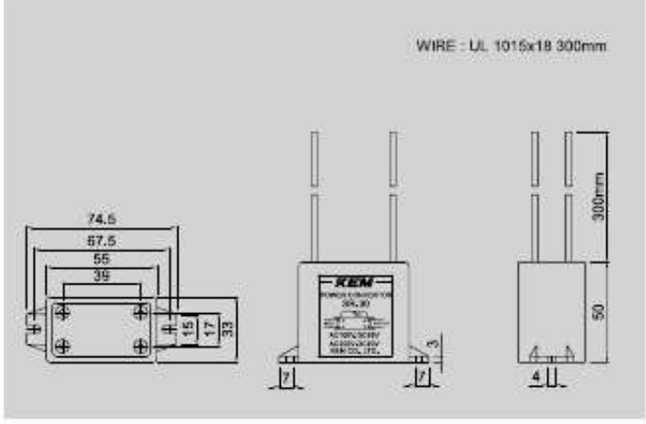
반파 정류기 POWER CONVERTOR

SR TYPE

SR-30



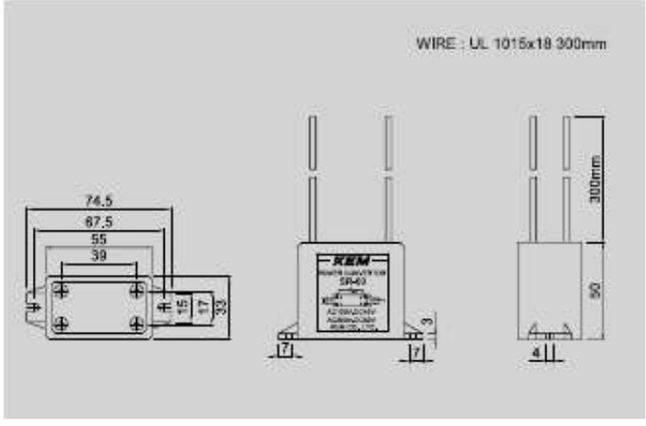
(입력 380V, 440V는 주문제작)



SR-60

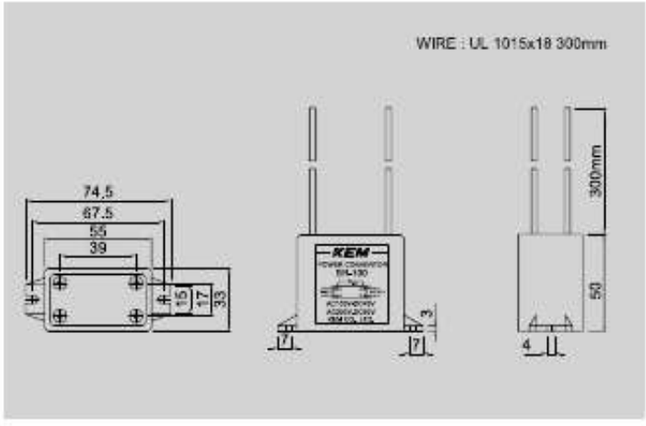


(입력 380V, 440V는 주문제작)



SR-100





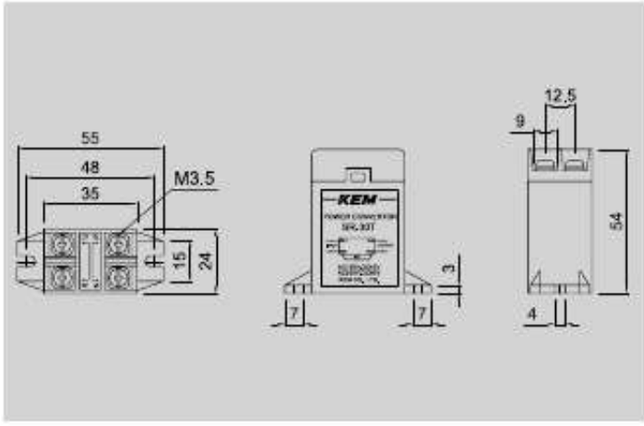
반파 정류기 POWER CONVERTOR

SR TYPE

SR-30T



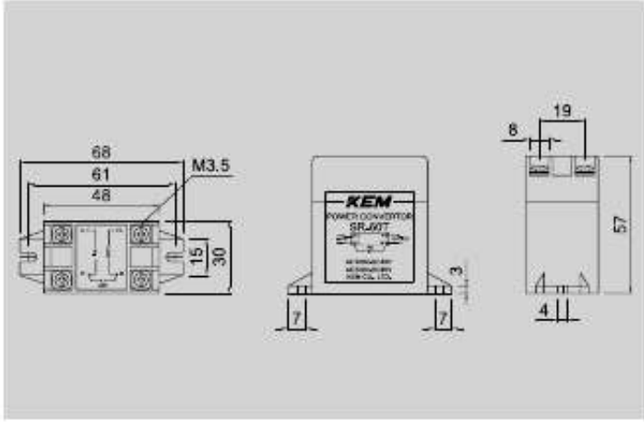
(입력 380V, 440V는 주문제작)



SR-60T

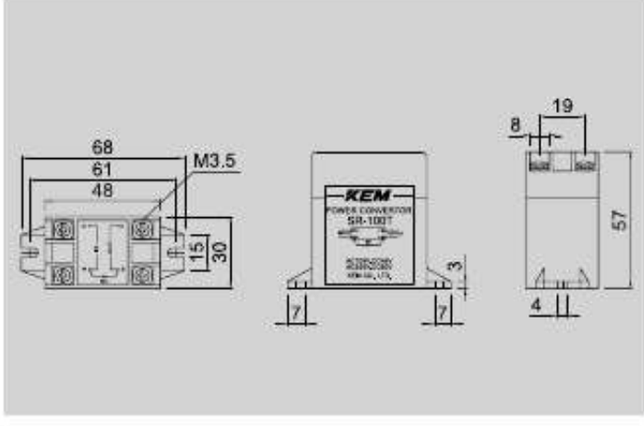


(입력 380V, 440V는 주문제작)



SR-100T





오일 킬러
OIL KILLER

인터페이스 커버
INTERFACE COVER

정류기
POWER CONVERTOR

역 결상 계전기
PHASE MONITORING RELAY

풋 스위치
FOOT SWITCH

푸쉬 버튼 스위치
PUSH BUTTON SWITCH

코드 스위치
CODE SWITCH

노브
KNOB

로타리 스위치
ROTARY SWITCH

써지 보호 장치
SURGE PROTECTIVE DEVICE

스파크 킬러
SPARK KILLER

LED 인디케이터
LED INDICATOR

노 퓨즈 브레이커 핸들
N.F.B HANDLE

케이블 그랜드
CABLE GLAND

팬 커버
FAN COVER

힌지/록커/키
HINGE/LOCKER/KEY

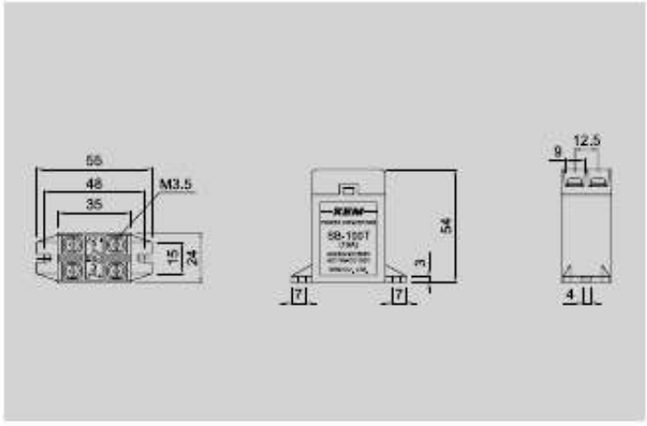
로드메터·알피엠메터
LOAD METER·RPM METER

기타 품목
THE OTHER PRODUCTS

SB TYPE

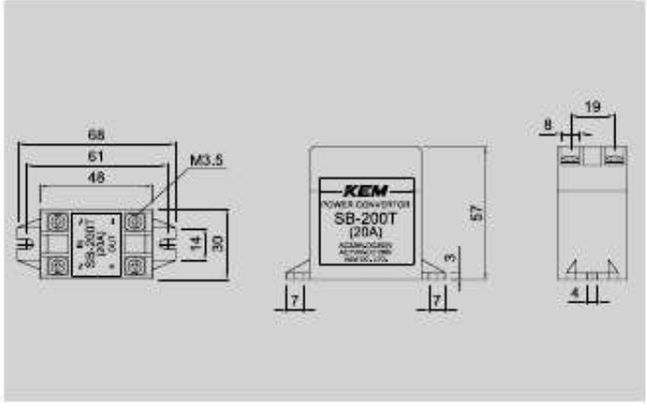
SB-100T





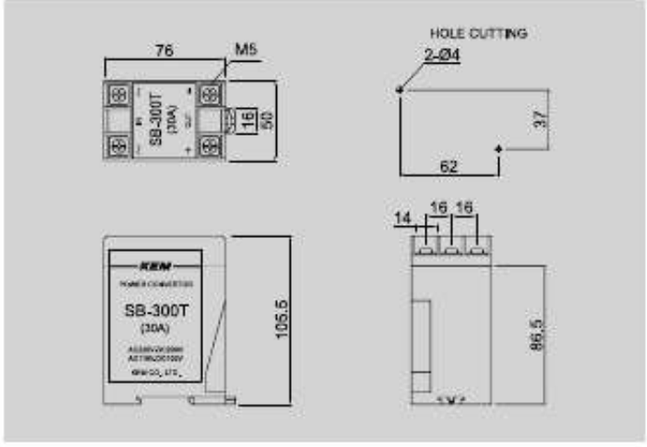
SB-200T





SB-300T





PHASE MONITORING RELAY
역·결상 계전기

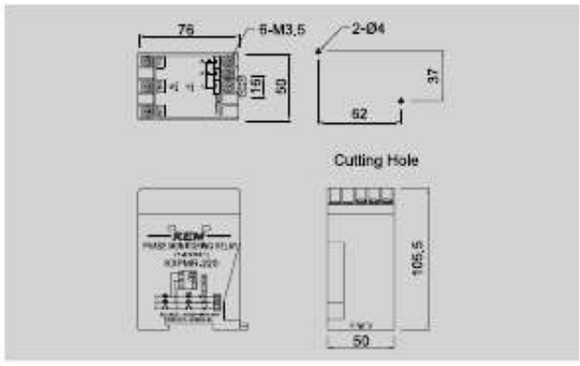


역·결상 계전기

PHASE MONITORING RELAY

K3PMR 220 / 380 / 440





사 양

정격 전압		3Ø AC 200~240V, 50/60Hz
		3Ø AC 340~390V, 50/60Hz
		3Ø AC 400~450V, 50/60Hz
사용주위온도		-10~+50°C (단, 결빙되지 않을것)
수 명	기계적	10만회 이상
	전기적	1만회 이상

Specification

Rated voltage		3Ø AC 200~240V, 50/60Hz
		3Ø AC 340~390V, 50/60Hz
		3Ø AC 400~450V, 50/60Hz
Available Temperature		-10~+50°C (Never freeze)
Life	Mechanical	More than 100,000 times
	Electrical	More than 10,000 times

형 식

K3PMR □ ①

①	전 압	220	3Ø AC 220V
		380	3Ø AC 380V
		440	3Ø AC 440V

※ K3PMR-220 입력전압 이외의 외부 신호를 접점 신호로 이용시 사용하시면 됩니다.

Type

K3PMR □ ①

①	Voltage	220	3Ø AC 220V
		380	3Ø AC 380V
		440	3Ø AC 440V

※ External signals other than input voltage of K3PMR-220 can be used as a point of contact.

동작원인 확인

조 건		LED 신호 (녹색 | 적색)
정상운전		
결 상	R	
	S	
	T	
역상동작		

Check cause of operation

Condition		LED Signal (GREEN | RED)
Normal Run		
Phase Loss	R	
	S	
	T	
Phase Reversal		

보호 기능

보호항목	동작시간
역 상	0.1초
결 상	1초
Fail-safe	입력전원 이상시 Relay가 여지 되지 않음

Protection Function

protection items	operating time
Phase Reversal	0.1sec
Phase Loss	1sec
Fail-safe	Relay does not work when input power is abnormal.

용 도

오배선에 의한 역회전이 사고로 연결되는 기기의 내장용으로 콘베어, 호이스트, 크레인, 수중 펌프, 압축기, 냉동기, 공작기계, 건설기계 등

Use

It is built inside the machine that might cause accidents due to wiring error including conveyer, hoist, crane, under water pump, compressor, manufacturing machines, construction machines, etc.

역·결상 계전기

PHASE MONITORING RELAY

사용상의 주의 및 특징

1. 마그네트 콘텍터 부하측의 오배선은 검출되지 않습니다.
2. 전원 투입과 동시에 정상, 역상, 결상을 판별하고 역상, 결상일 때 접점이 여자 되지 않고 LED로 원인을 표시합니다.
3. 전압 검출 방식이기 때문에 부하 전류에 관계없이 사용 가능합니다.

Instructions for use & Characteristics

1. It's not able to detect wrong wiring of the magnetic contactors load.
2. At the same time as power is turned on, normal, reversed phase, and open phase are determined, and the contact is not energized and the cause is indicated by LED in case of reverse or phase loss.
3. Uses voltage detection method to prerate independently of load current.

안전을 위한 주의 사항 / Attention list for safety

주 의

1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시길 바랍니다.
5. 청소시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른수건이나 압축공기 등으로 청소를 하시기 바랍니다.
6. 본 기기를 낙하시키는 등 충격을 가하지 마십시오.
7. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고없이 변경될 수 있습니다.

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 반드시 판넬에 취부하여 사용 하십시오. 감전, 오작동, 고장의 원인이 됩니다.
3. 감전방지 및 기기 고장 방지를 위하여 모든 배선이 종료될 때 까지 전원을 투입하지 마십시오.
4. 가스 근처에서 사용금지. 방폭구조가 아니므로 가연성, 폭발성 가스가 있는 장소에서는 사용하지 마십시오.
5. 정격 이외로 사용시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
6. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지 확인 하십시오.
7. 제품의 분해, 가공, 개조, 수리를 하면 오작동의 원인이 되므로 절대로 하지 마십시오.
8. 본 기기의 파손방지 및 고장방지를 위하여 정격에 맞는 전압을 사용하여 주십시오.
9. 본 기기의 탈착은 전원을 OFF한 후 조치 하십시오. 감전, 오작동, 고장의 원인이 됩니다.
10. 통전 중에 본 기기를 분해하거나 단자에 접촉하지 마십시오. 감전, 오작동의 위험이 있습니다.

Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it in a place where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
5. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
6. Avoid shocks such as dropping the product.
7. The colors or parts of design of this product are subject to changes without a prior notice in order to improve the quality of the product.

Warning

1. When it used in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In any case, it should be used while being attached on the panel. it might cause electric shock, malfunctioning or breakdown.
3. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
4. Do not use near the gas. It is not explosion-proof, therefore, do not use near the inflammable or explosive gas.
5. If it is used with the voltage other thand the designated one, it might cause injury for human and property damage.
6. Be fore turning on the power, make sure whether the wires are connected correctly.
7. Do not disassemble, process, remedy or repair this product in any case, because it might cause malfunctioning.
8. To prevent breakage and malfunctioning of this product, appropriate power voltage should be supplied.
9. To separate the product, turn off the power supply first. It might cause electric shock, malfunctioning or breakdown.

FOOT SWITCH
풋 스위치



풋 스위치

특 징

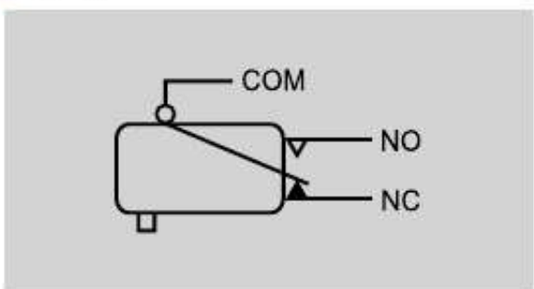
1. 풋스위치 내부 마이크로 스위치는 UL/CE 국제 규격 승인품으로 안전합니다. *(스위치 : 오므론) R(Lock type)은제외
2. 배선 시 후렉시블 튜브를 사용하시면 외부충격으로부터 더욱 안전합니다.
3. 접점 용량이 크며 응답속도가 빠르고 긴 수명을 보장합니다.
4. 생산현장의 안전을 위한 안전 커버형과 안전 레버형이 있습니다.

형 식

KF-□□□□□
❶ ❷ ❸ ❹ ❺

❶	몸체 크기	무	다이캐스팅 대	
		D	다이캐스팅 중	
		ED	다이캐스팅 소	
		M	플라스틱 대	
		S	플라스틱 중	
		E	플라스틱 소	
		H	다이캐스팅 소 (201)	
		B	다이캐스팅 원형 타입	
❷	몸 체 수	1	1 EA	
		2	2 EA	
		3	3 EA	
❸	배 선 홀	0	1 EA	다이캐스팅 大 모델만 적용
		2	2 EA	
❹	접 점	1	1a1b ※룩크 타입에선 1a만 가능	
		2	2a2b	
❺	타 입	P	안전 커버형(P)	
		G	안전 커버형(G)	
		R	룩크형	
		W	방수형	
		L	전선형	
		S	안전 레바형	
		D	안전 커버 일체형	

접 점



FOOT SWITCH

Characteristics

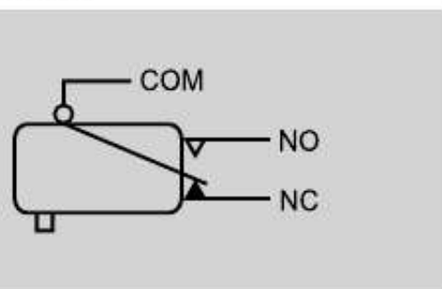
1. It's in foot switch micro switch approved by the UL/CE International standards assures safety. *(switch : omron) R(Lock type) except
2. In case of wiring you can promote safety from out side impacts by using the flexible tube.
3. It's contact point capacity is great and it's response speed is fast, thus assuring longer life.
4. There are safety cover types and safety lever type for safety on the shop floor.

Type

KF-□□□□□
❶ ❷ ❸ ❹ ❺

❶	Body size	None	Large diecasting	
		D	Medium diecasting	
		ED	Small diecasting	
		M	Large plastic	
		S	Medium plastic	
		E	Small plastic	
		H	Small diecasting (only 201)	
		B	Diecasting round type	
❷	Body capacity	1	1 EA	
		2	2 EA	
		3	3 EA	
❸	Wiring hole	0	1 EA	Diecasting large models only
		2	2 EA	
❹	Contact point	1	1a1b ※Lock type possible 1a only	
		2	2a2b	
❺	Type	P	Safety cover type (P)	
		G	Safety cover type (G)	
		R	Self Lock type	
		W	Waterproofness type	
		L	Wire type	
		S	Safety lever type	
		D	Safety cover solid bottom type	

Contact Point



풋 스위치

성 능

허용 전류	125VAC/16A, 250VAC/8A
수명	기계적 100만회 이상
내장 스위치 (기본)	OMRON V-16-IC25 BY OMI(UL/CSA) • 고객의 요청에 의한 스위치 변경 가능합니다. ※단 R(록크) 타입 제외.

용 도

공작기계, 프레스, 샤링기, 절곡기, 용접기, 목공기계,
자동화 기계, 의료기기, 사진 기기, 사무 기기, 통신 기기

FOOT SWITCH

Performance

Allowable Current	125VAC/16A, 250VAC/8A
Average life cycle	mechanical 1,000,000 times or more
Micro switch (Standard)	OMRON V-16-IC25 BY OMI(UL/CSA) • Customizing to other micro switch is possibly by order. ※R(Lock) type except.

Use

Machine tools, Presses machines, Shearing machines,
Bending machines, machines, Wood working Welders,
Automatic machines.

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 감전방지 및 기기 고장 방지를 위하여 모든 배선이 종료될 때까지 전원을 투입하지 마십시오.
3. 가스 근처에서의 사용 금지 - 방폭구조가 아니므로 가연성, 폭발성 가스가 있는 장소에서는 사용하지 마십시오.
4. 통전 중에 본 기기를 분해하거나 단자에 접촉하지 마십시오. 감전, 오작동, 고장의 원인이 됩니다.
5. 본 기기는 절대로 분해, 가공, 개선, 수리하지 마십시오. 이상 동작, 감전, 화재의 위험이 있습니다.
6. 본 기기의 탈착은 전원을 OFF한 후 조치 하십시오. 감전, 오작동, 고장의 원인이 됩니다

주 의

1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
3. 물이 들어갔을 때에는 누전, 화재의 위험이 있으므로 필히 점검을 하시기 바랍니다.
4. 본 제품의 품질 향상을 위하여 색상 및 일부 디자인은 사전 통보 및 예고없이 변경 될 수도 있습니다.
5. 마이크로 스위치 단자에 납땜을 하실 때 인두기로 필요 이상의 열을 가하면 단자가 밀려 마이크로 스위치의 작동 불량의 원인이 될 수 있습니다.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
3. Do not use near the gas.
   It is not explosion-proof, therefore, do not use near the inflammable or explosive gas.
4. Do not disassemble this product or touch the terminals when the electricity is on. it might cause electric shock, malfunctioning or breakdown.
5. In any case, do not disassemble, process, reform, and repair this product. it might cause malfunctioning, electric shock, or fire.
6. Before separating the product, turn off the power supply first. it might cause electric shock, malfunctioning or breakdown.

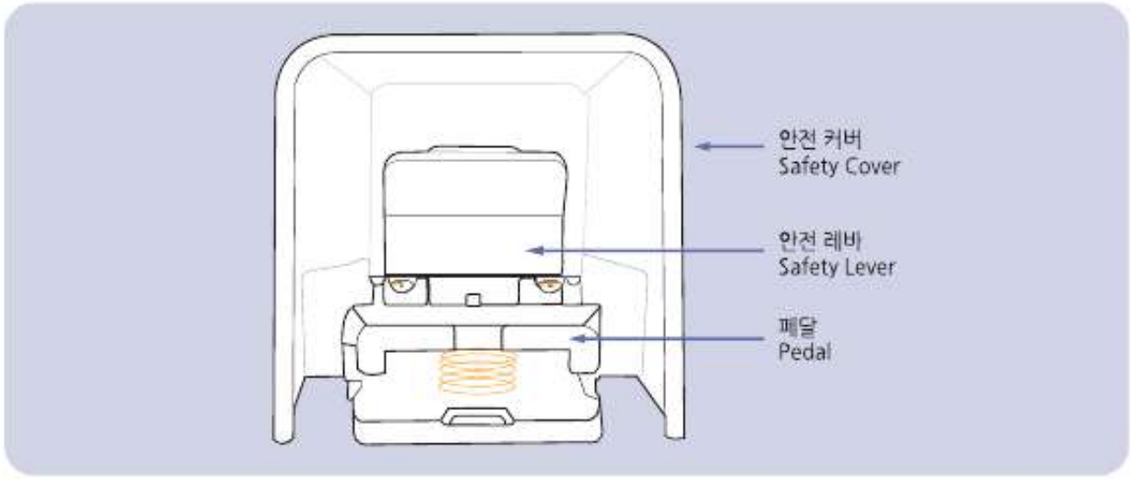
Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it in a place where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
3. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
4. The colors or parts of design of this product are subject to changes without a prior notice in order to improve the quality of the product.
5. In the micro switch terminal soldering work if overheating will cause then micro switch terminal start-up adverse situation.

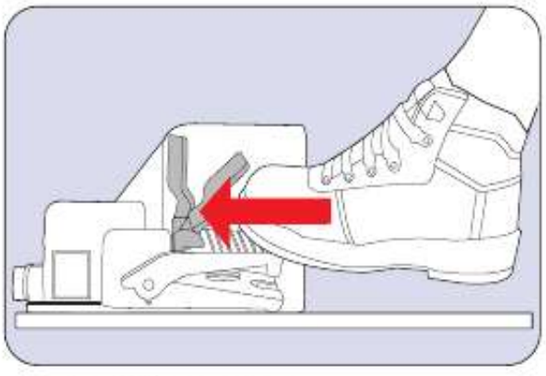
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풋 스위치 FOOT SWITCH

안전 레바형 구조 (The frame of safety lever type)

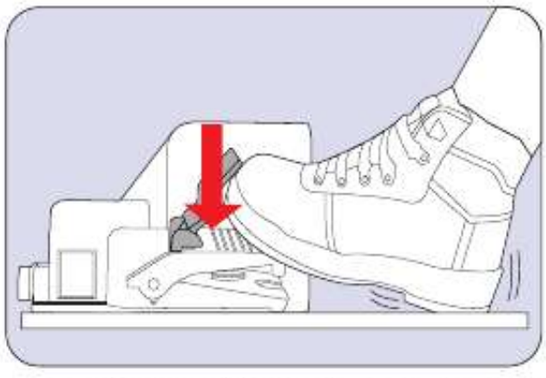


안전 레바형 사용법 (Instructions of safety lever type)



① 안전 레바를 발로 먼저 밉니다.

① Push the safety lever forward.



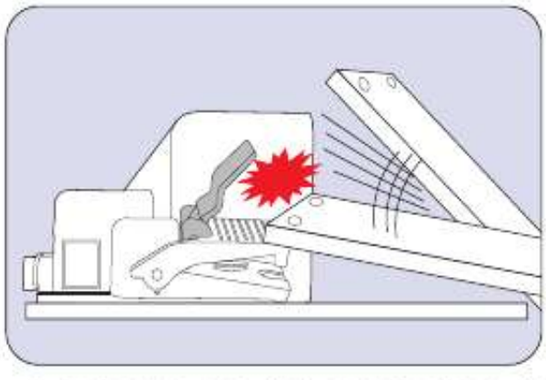
② 안전 레바를 민 상태에서 발판을 밟으면 동작이 가능합니다.

② Step the pedal while you push the safety lever forward.



※ 안전 커버를 연 상태에서 안전 레바를 밟으면 안전레바가 파손될 수 있습니다.

※ Safety lever will be broken if you step it while the safety cover is uncovered.



※ 무거운 물건이 떨어지더라도 발판스위치가 움직이지 않습니다.

※ The pedal will not be pressed even if heavy thing falls down.

풋 스위치 FOOT SWITCH

사 양 / Specification

Type	Model	Body			Color	Contact point	Option					Features		
		1	2	3			Safety cover type	Lock type	Water proofness type	Wire Type	Safety lever	UL	IP	kgf(±10%) (Kilogram-force)
Die-casting safety lever type	KF-101	●			Green	1a1b						●		3.2kgf
	KF-102(2Step)	●			Green	2a2b								8kgf / 21kgf (1step / 2step)
	KF-101Y	●			Yellow	1a1b						●		3.2kgf
	KF-101YN	●			Yellow	1a1b								3.2kgf
	KF-102Y(2 step)	●			Yellow	2a2b								8kgf / 21kgf (1step / 2step)
	KF-201		●		Green	1a1bX2						●		3.2kgf
	KF-202(2 Step)		●		Green	2a2bX2								8kgf / 21kgf (1step / 2step)
	KF-201Y		●		Yellow	1a1bX2						●		3.2kgf
	KF-202Y(2 Step)		●		Yellow	2a2bX2								8kgf / 21kgf (1step / 2step)
	KF-301			●	Green	1a1bX3						●		3.2kgf
	KF-301Y			●	Yellow	1a1bX3						●		
	KF-101P	●			Yellow	1a1b	●					●	IP54	3.2kgf
	KF-102P(2 Step)	●			Yellow	2a2b	●							8kgf / 21kgf (1step / 2step)
	KF-201P		●		Yellow	1a1bX2	●					●		3.2kgf
	KF-202P(2 Step)		●		Yellow	2a2bX2	●							8kgf / 21kgf (1step / 2step)
	KF-301P			●	Yellow	1a1bX3	●					●		3.2kgf
	KF-121P	●			Yellow	1a1b	●					●		
	KF-201D		●		Yellow	1a1bX2	●					●		
	KF-ED101	●			Gray	1a1b								0.8kgf
	KF-B101(L)	●			Black	1a1b				●			IPX3	
	KF-B201(L)		●		Black	1a1bX2				●				
	KF-D101	●			Gray	1a1b								4kgf
	KF-H201		●		Green	1a1bX2							IPX6	1.2kgf

* 각 모델명 뒤에 (L)을 붙이면 선을 부착해 드립니다. (선 길이 - 2,500mm) ex) KF-101(L)
If you want wire, please put '(L)' end of model letters. (Wire Length - 2,500mm) ex) KF-101(L)

* 접점 2a2b 사양의 제품은 주문 제작 가능합니다. (단, 다이캐스팅 록크타입, 플라스틱 타입은 제외)
2a2b contact point type can be make to order. (Except diecasting lock type & plastic type)
ex) KF-10[1] : 1a1b | KF-10[2] : 2a2b

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풋 스위치 FOOT SWITCH

사 양 / Specification

Type	Model	Body			Color	Contact point	Option					Features		
		1	2	3			Safety cover type	Lock type	Water proofness type	Wire Type	Safety lever	UL	IP	kgf(±10%) (Kilogram-force)
Diecasting lock type	KF-101R (L)	●			Green	1a		●		●				3.2kgf
	KF-101YR (L)	●			Yellow	1a		●		●				
	KF-101PR (L)	●			Yellow	1a	●	●		●				
	KF-B101R (L)	●			Black	1a		●		●			IPX3	0.8kgf
	KF-D101R (L)	●			Gray	1a		●		●				4kgf
Diecasting waterproofness type	KF-101W (L)	●			Green	1a1b			●	●			IP67	3.2kgf
	KF-101YW (L)	●			Yellow	1a1b			●	●				
	KF-101PW (L)	●			Yellow	1a1b	●		●	●				
Diecasting safety lever type	KF-101S	●			Green	1a1b					●	●		3.2kgf
	KF-101YS	●			Yellow	1a1b					●	●		
	KF-101PS	●			Yellow	1a1b	●				●	●	IP54	3.2kgf
	KF-201PS		●		Yellow	1a1bX2	●				●	●		3.2kgf
	KF-301PS			●	Yellow	1a1bX3	●				●	●		
	KF-201DS		●		Yellow	1a1bX2	●				●	●		
	KF-121PS	●			Yellow	1a1b	●				●	●		
	KF-221PS		●		Yellow	1a1bX2	●				●			
	KF-101GS	●			Orange	1a1b	●				●			
	KF-201GS		●		Orange	1a1bX2	●				●			
Plastic type	KF-E101	●			Gray	1a1b								0.8kgf
	KF-E101Y	●			Yellow	1a1b								
	KF-E101 (L)	●			Gray	1a1b				●				
	KF-E101Y (L)	●			Yellow	1a1b				●				
	KF-S101	●			Gray	1a1b								0.6kgf
	KF-S101Y	●			Yellow	1a1b								
	KF-S101 (L)	●			Gray	1a1b				●				
	KF-S101Y (L)	●			Yellow	1a1b				●				
	KF-M101	●			Gray	1a1b								2kgf
	KF-M101 (L)	●			Gray	1a1b				●				

* 각 모델명 뒤에 (L)을 붙이면 선을 부착해 드립니다. (선 길이 - 2,500mm) ex) KF-101(L)
If you want wire, please put '(L)' end of model letters. (Wire Length - 2,500mm) ex) KF-101(L)

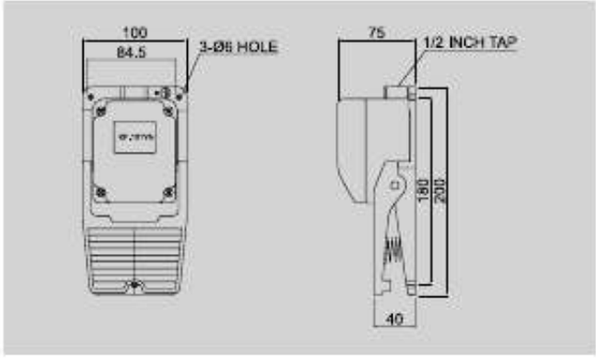
* 접점 2a2b 사양의 제품은 주문 제작 가능합니다. (단, 다이캐스팅 록크타입, 플라스틱 타입은 제외)
2a2b contact point type can be make to order. (Except diecasting lock type & plastic type)
ex) KF-10[1] : 1a1b | KF-10[2] : 2a2b

풋 스위치 FOOT SWITCH

DIECASTING STANDARD TYPE

KF-101YN

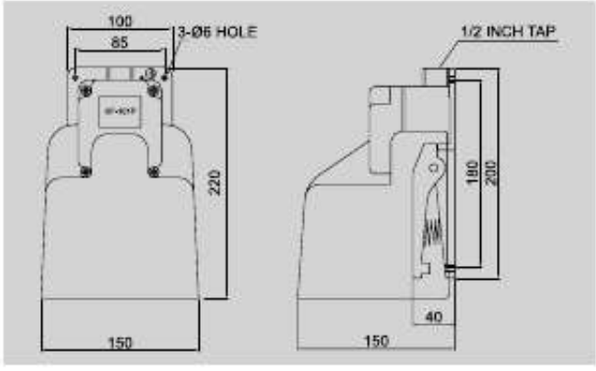




KF-101P KF-102P
KF-101P(L) KF-102P(2 Step)



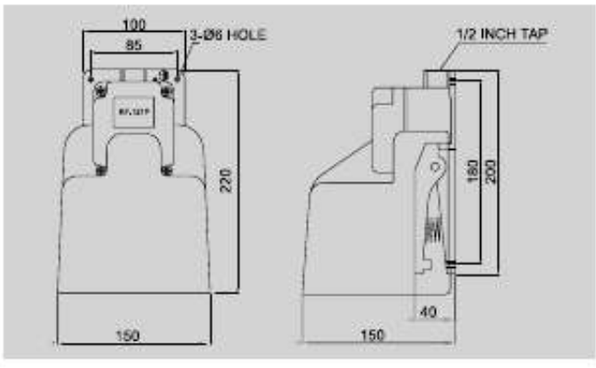
COLOR



KF-121P

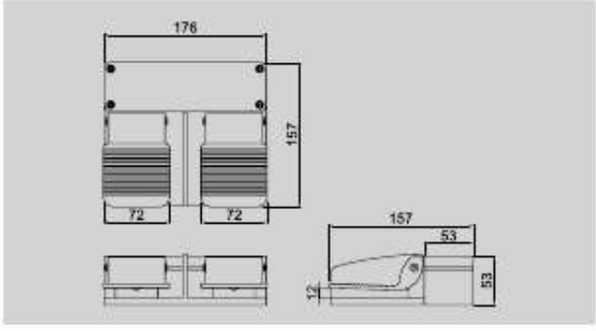


COLOR



KF-H201





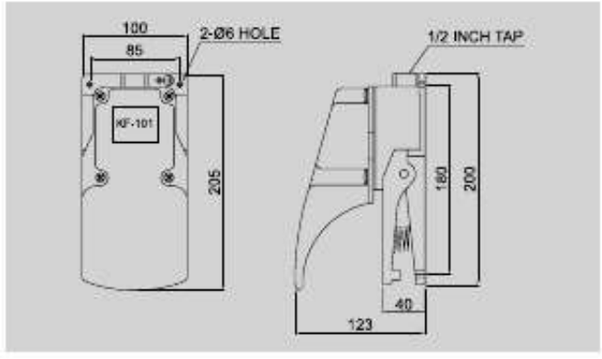
풋 스위치 FOOT SWITCH

DIECASTING STANDARD TYPE

KF-101 **KF-101 (L)**
KF-102 **KF-102 (2 Step)**



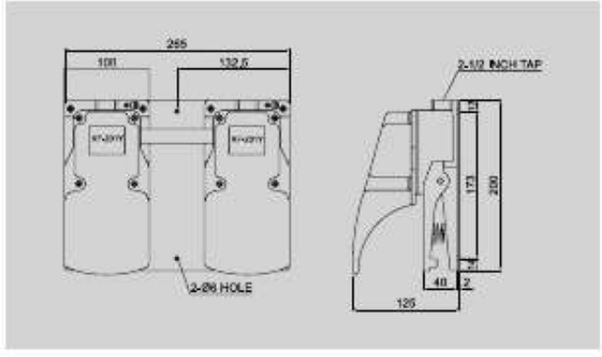
COLOR



KF-201Y **KF-202Y (2 Step)**
KF-202Y



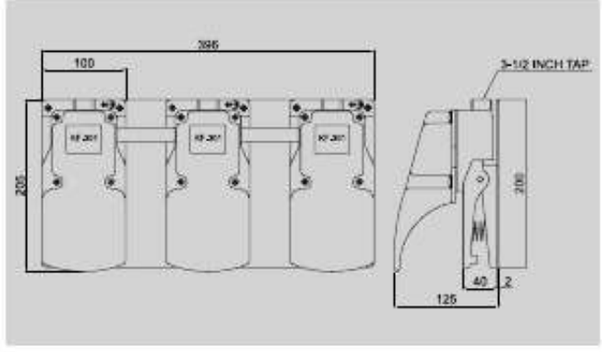
COLOR



KF-301



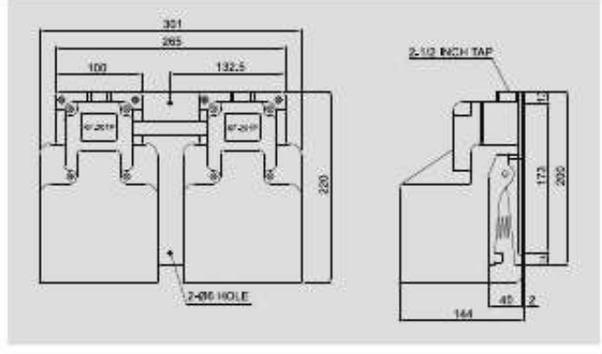
COLOR



KF-201P **KF-202P (2 Step)**
KF-202P



COLOR



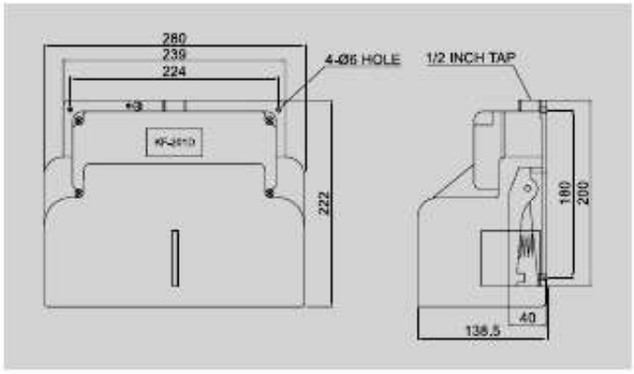
풋 스위치 FOOT SWITCH

DIECASTING STANDARD TYPE

KF-201D



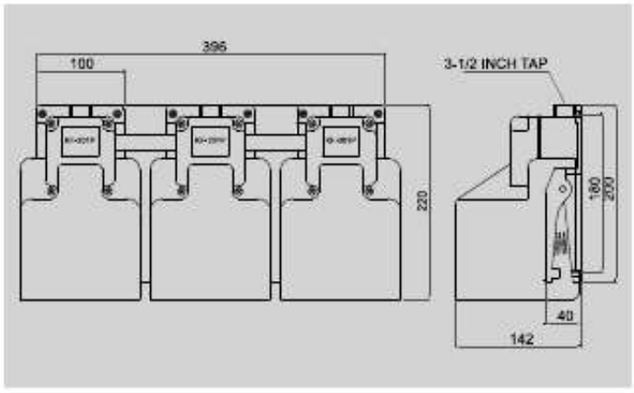
COLOR



KF-301P



COLOR

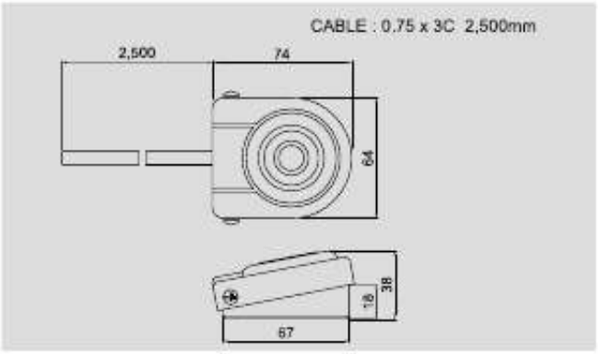


풋 스위치 FOOT SWITCH

DIECASTING STANDARD TYPE

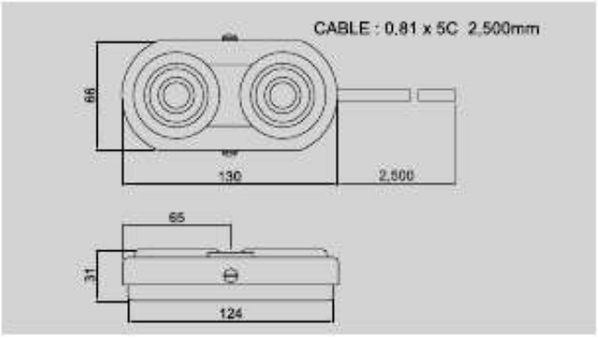
KF-B101 (L)





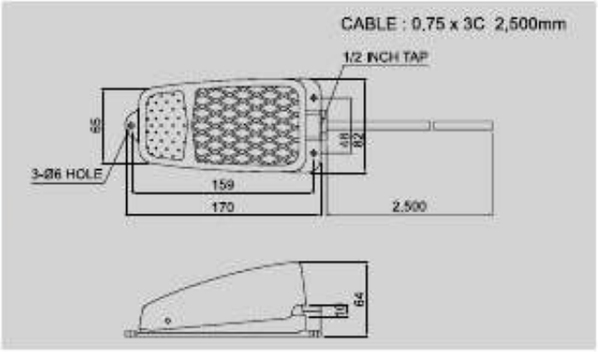
KF-B201 (L)





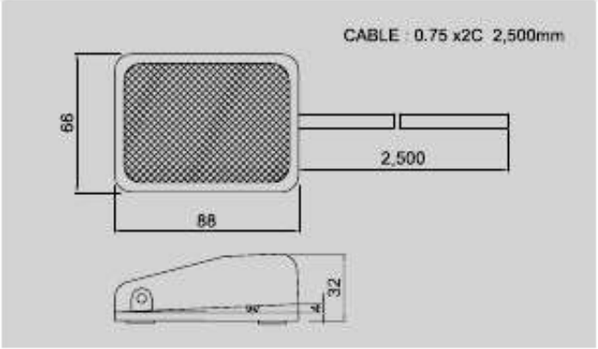
KF-D101 KF-D101 (L)





KF-ED101 KF-ED101 (L)





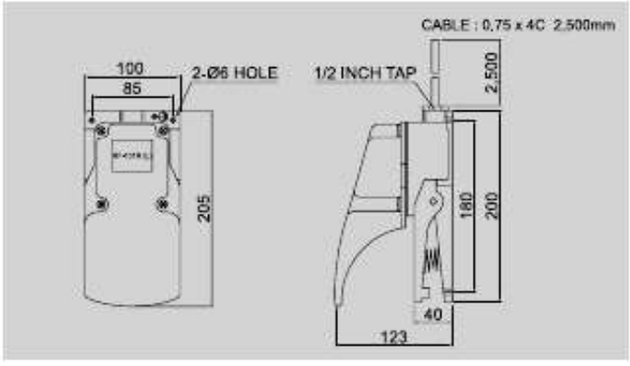
풋 스위치 FOOT SWITCH

DIECASTING LOCK TYPE

KF-101R (L)



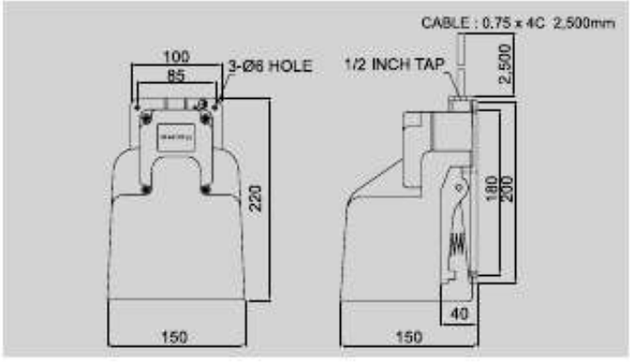
COLOR



KF-101PR (L)

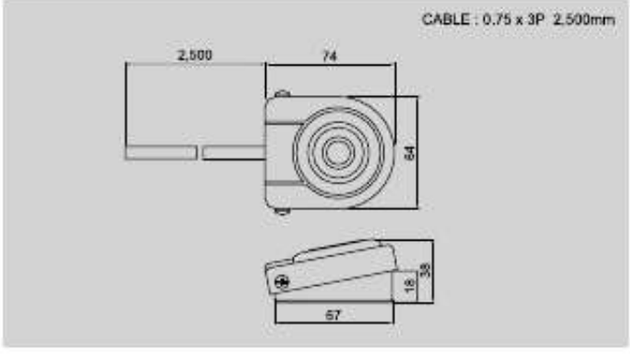


COLOR



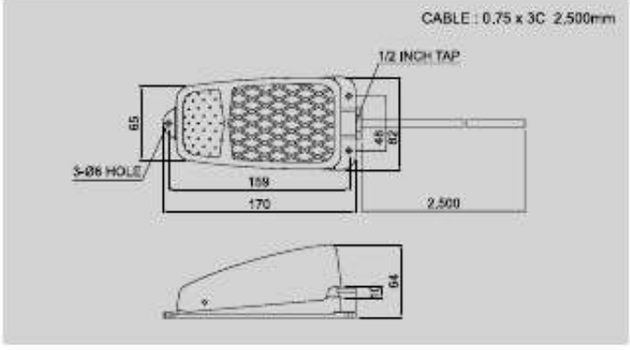
KF-B101R (L)





KF-D101R (L)





풋 스위치 FOOT SWITCH

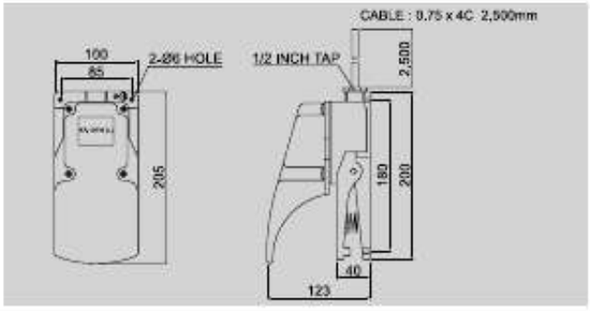
DIECASTING WATERPROOFNESS TYPE

KF-101W (L)

Micro S/W IP67
Cover IP54



COLOR

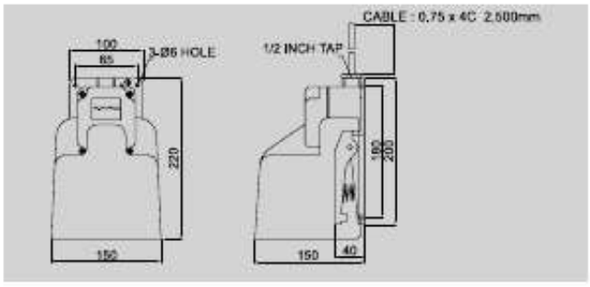


KF-101PW (L)

Micro S/W IP67
Cover IP54



COLOR

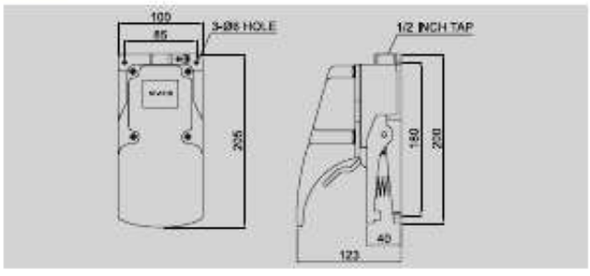


DIECASTING SAFETY LEVER TYPE

KF-101S



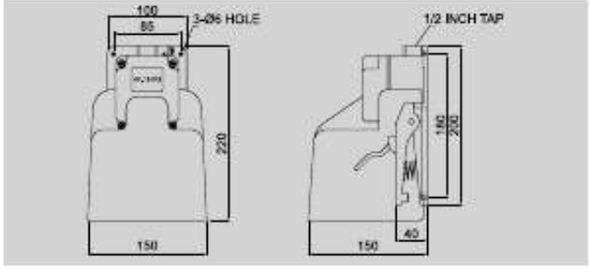
COLOR



KF-101PS



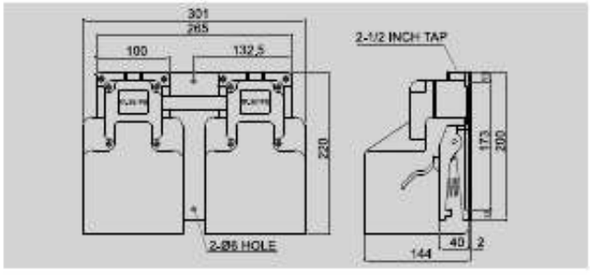
COLOR



KF-201PS



COLOR



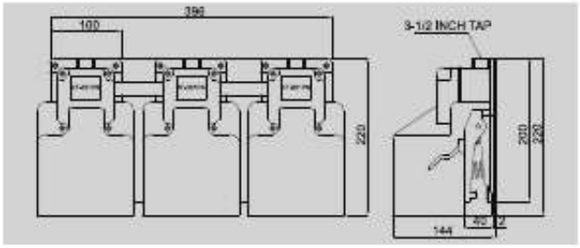
풋 스위치

FOOT SWITCH

KF-301PS



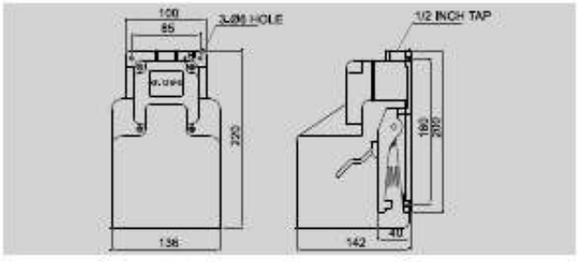
COLOR



KF-121PS



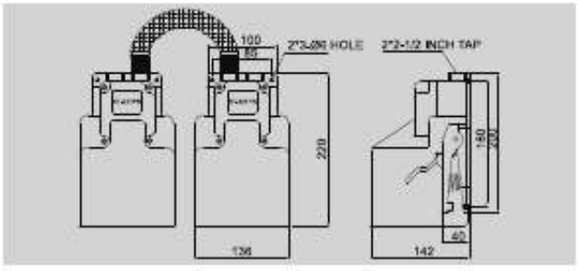
COLOR



KF-221PS



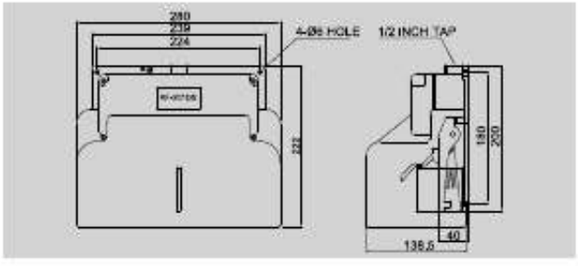
COLOR



KF-201DS



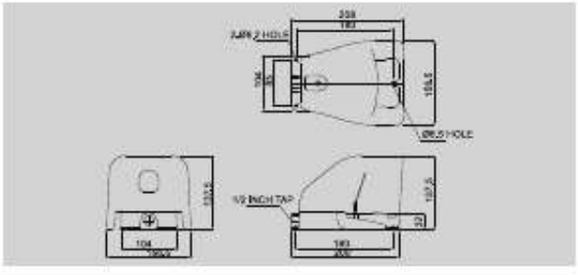
COLOR



KF-101GS NEW



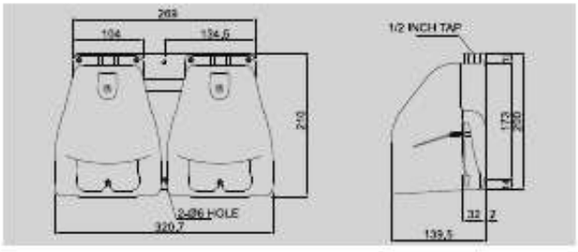
COLOR



KF-201GS NEW



COLOR



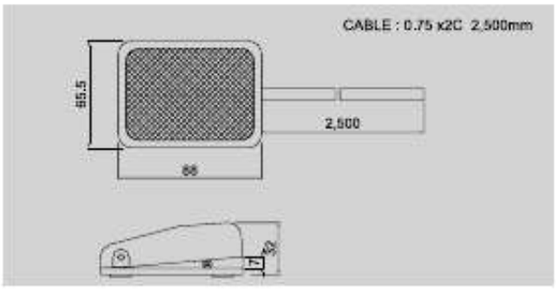
풋 스위치 FOOT SWITCH

PLASTIC TYPE

KF-E101 **KF-E101 (L)**
KF-E101Y **KF-E101Y (L)**



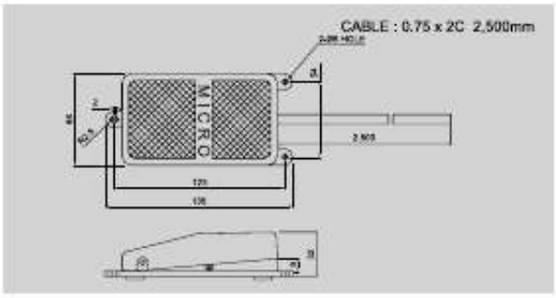




KF-S101 **KF-S101 (L)**
KF-S101Y **KF-S101Y (L)**



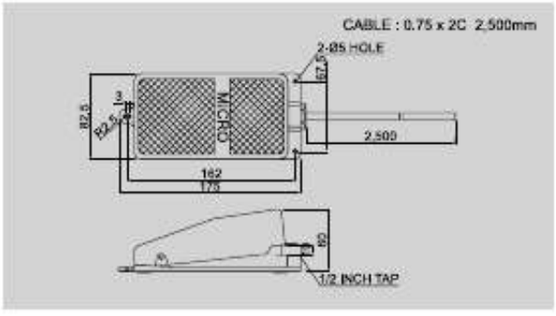




KF-M101 **KF-M101 (L)**



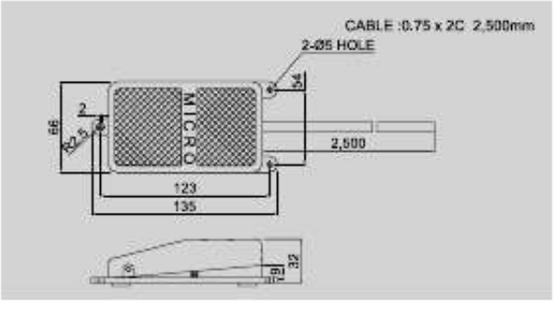




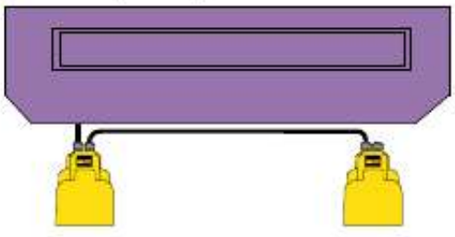
KF-S101GY **KF-S101GY (L)**
KF-S101YG **KF-S101YG (L)**







사용 예 / Usage



※ 터닝센터 및 대형 장비에 사용
(For turning centers and large equipment)

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PUSH BUTTON SWITCH
푸쉬 버튼 스위치



푸쉬 버튼 스위치

PUSH BUTTON SWITCH

용 도

- 사무용 기기
- 각종 측정장비
- 산업용 자동제어 기기
- 이동식 소형 CONTROL BOX
- 자동화 기기

Use

- Office devices
- Various measurement control machines
- Industrial automatic control machines
- Small portable CONTROL BOX
- Automatic machines

형 식

KP□-□□□-□□

① ② ③ ④ ⑤

①	버튼 형식	무	돌출형
		C	
		U	매입형
②	전 류	무	AC 250V 8A
		S	AC 250V 5A
③	방수	무	
		W	
④	판넬 가공치수	10	10Ø
		12	12Ø
		16	16Ø
		22	22Ø
		25	25Ø
⑤	접 점	무	1a1b
		2	2a2b
⑥	색 상	R	적 색
		G	녹 색
		Y	황 색
		B	청 색
		W	백 색

Type

KP□-□□□-□□

① ② ③ ④ ⑤

①	Button type	None	Projecting type
		C	
		U	Panel type
②	Electric current	None	AC 250V 8A
		S	AC 250V 5A
③	Waterproof	None	
		W	
④	Panel cutting size	10	10Ø
		12	12Ø
		16	16Ø
		22	22Ø
		25	25Ø
⑤	Contact point	None	1a1b
		2	2a2b
⑥	Color	R	Red
		G	Green
		Y	Yellow
		B	Blue
		W	White

사 양 / Specification

구 분 / Division		KP	KP-S
정 격 / Rated electric power		AC 250V 8A	AC 250V 5A
절연저항 / Insulation resistance		100MΩ이상 (DC 500V에서) / 100MΩ Higher than (DC 500V)	
접촉저항 / Contact resistance		15mΩ이하 (초기치) / Lower than 15mΩ(initial value)	500mΩ이하 / Lower than 500mΩ
내전압 / Withstanding voltage	충전부 사이 / Filling space	1,000VAC (50/60Hz) 1분간 / 1,000VAC (50/60Hz) For one minute	
	비충전부 사이 / Shortage space	1,500VAC (50/60Hz) 1분간 / 1,500VAC (50/60Hz) For one minute	
진 동 / Vibrate	오작동 / Error	10~55Hz 복진폭 : 1.5mm 3축 각방향 / 10~55Hz Vibration protection width: 1.5mm Each direction of the three axes	
수 명 / Life span	기계적 / Appliance	100 만회 이상 / One million times or more	
	전기적 / Electricity	10 만회 이상 / Over 100,000 times	
사용주위 온도 / Available surrounding temperature		-25°C~+80°C	-25°C~+70°C
사용주위 습도 / Available surrounding humidity		45~85% RH	80% RH

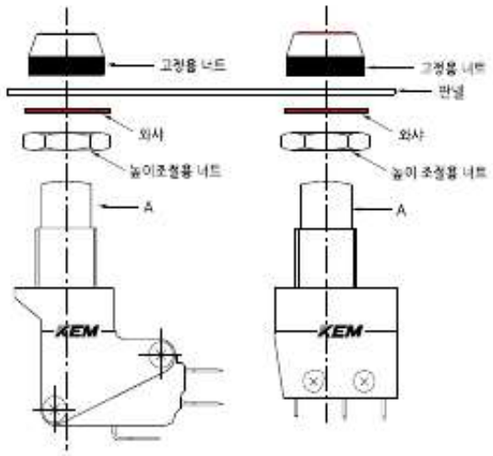
푸쉬 버튼 스위치

특 징

1. 버튼 머리부분의 높낮이를 용도에 맞춰 조절할 수 있습니다.
2. 버튼 돌출부위의 소형화로 각종 소형 CONTROL BOX에도 적합하도록 설계되었습니다.
3. 몸체는 다이캐스팅 사출제품이므로 견고합니다.
4. 동작부위는 아크릴 혼합수지 사출로 색상이 선명하고 적색, 녹색, 황색, 백색, 청색 등 다양한 색상으로 구성되어 선택의 폭이 넓습니다.
5. 고정 너트는 드라늄 소재 가공으로 견고하고 제품의 품위를 한층 높여 줍니다.

Panel 취부 방법

1. 높이 조절용 너트를 이용해서 A부분의 높이를 조절할 수 있습니다.
2. PANEL 두께가 두꺼울 경우 와샤 및 높이 조절용 너트 없이 사용할 수있습니다.



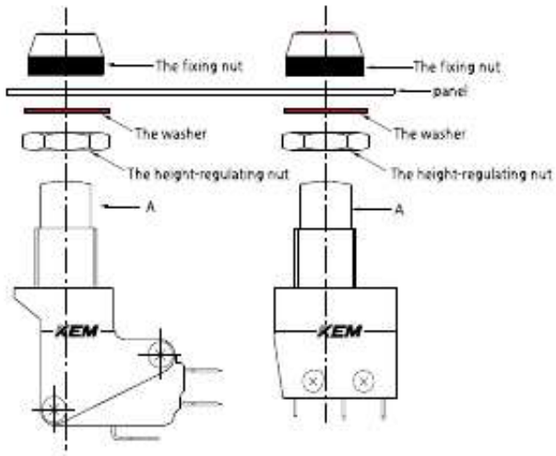
PUSH BUTTON SWITCH

Characteristics

1. You can adjust the height of the button according to purpose.
2. It was designed in the way that the projecting part of the button would fit all kinds of small furnaces and control boxes.
3. The body of product is solid as the injection product through diecasting.
4. The operating part is injection-made of acryl mixed resin, being highly clear and providing a wide range of choices of colors from red, green and yellow to white, blue.
5. The fixed nuts are processed with Dranum, promote the grade of the product.

The installation methods for panel

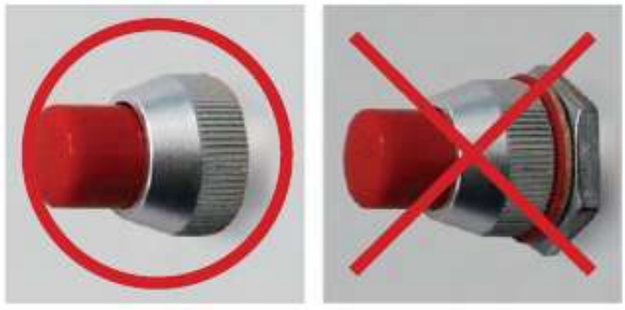
1. You can regulate the height of the A part by using the height-regulating nuts.
2. You can regulate the height of the washer without the concerned nuts in case the panel is thick.



취부 예시 / The installation example



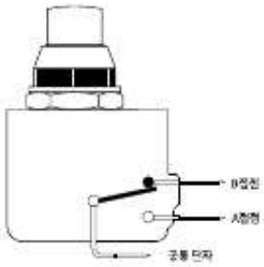
〈측면〉



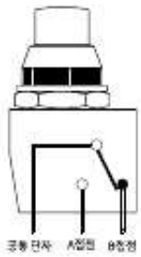
〈정면〉

푸쉬 버튼 스위치 PUSH BUTTON SWITCH

접점 구성도

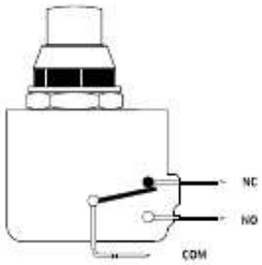


KP TYPE

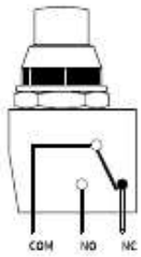


KP-S TYPE

The picture of the contact points



KP TYPE



KP-S TYPE

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 반드시 판넬에 취부하여 사용하십시오. 감전, 오작동, 고장의 원인이 됩니다.
3. 감전방지 및 기기 고장 방지를 위하여 모든 배선이 종료될 때 까지 전원을 투입하지 마십시오.
4. 가스중에서 사용 금지 - 방폭구조가 아니므로 가연성, 폭발성 가스가 있는 장소에서는 사용하지 마십시오.
5. 지정한 정격 이외로 사용 시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
6. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지를 확인 하십시오.
7. 본 기기는 절대로 분해, 가공, 개선, 수리하지 마십시오. 이상 동작, 감전, 화재의 위험이 있습니다.
8. 본 기기의 탈착은 전원을 OFF한 후 조치 하십시오. 감전, 오작동, 고장의 원인이 됩니다

주 의

1. 주문하신 사양과 일치 하는지 확인하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 제품 부착에 관하여 다음과 같은 장소를 피하여 주십시오.
   - 본체에 직접 진동, 충격이 가하여지는 장소
   - 티끌과 먼지, 염분, 철분이 많은 장소
   - 직사일광을 받는 장소
5. 마이크로 스위치 단자에 납땜을 하실 때 인두기로 필요 이상의 열을 가하면 단자가 밀려 마이크로 스위치의 작동 불량의 원인이 될 수 있습니다.
6. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고 없이 변경될 수 있습니다.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In any case, It should be used while being attached on the panel. It might cause electric shock, malfunctioning or breakdown.
3. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
4. Do not use near the gas. It is not explosion-proof, therefore, do not use near the inflammable or explosive gas.
5. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
6. Before turning on the power, make sure whether the wires are connected correctly.
7. In any case, do not disassemble, process, reform, and repair this product. It might cause malfunctioning, electric shock, or fire.
8. Before separating the product, turn off the power supply first. It might cause electric shock, malfunctioning or breakdown.

Attention

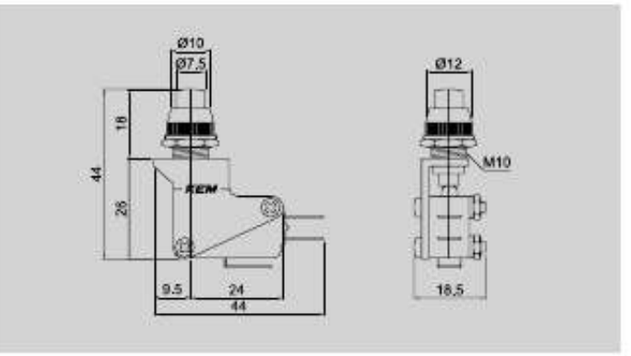
1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it in a place where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. Avoid the following places when installing the product.
   - Place where the main body can receive shock or vibration directly.
   - Place with a lot of dusts, dirts, salts or irons.
   - Place exposed with a direct sunlight.
5. In the micro switch terminal soldering work if overheating will cause then micro switch terminal start-up adverse situation.
6. The colors or parts of design of this product are subject to changes without a prior notice in order to improve the quality of the product.

KP TYPE

KP-10



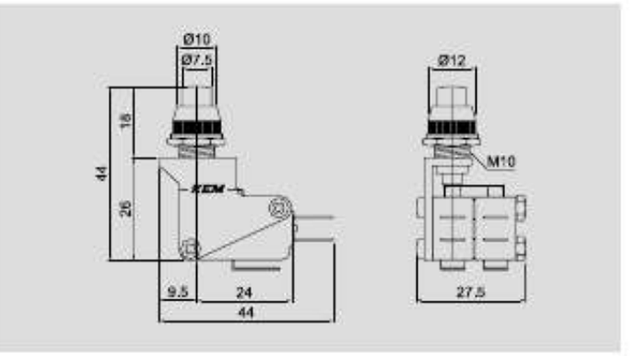
COLOR



KP-10-2



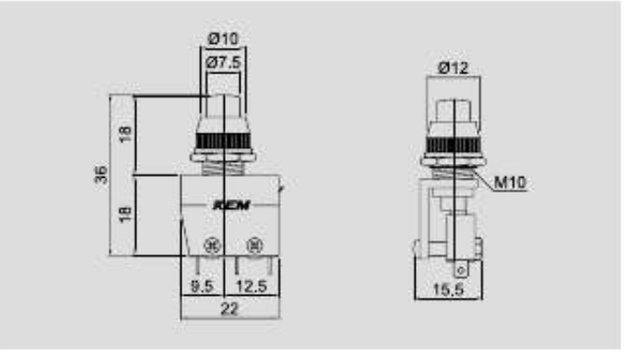
COLOR



KP-S10



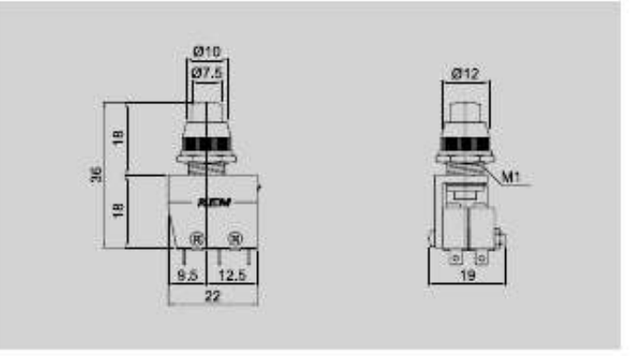
COLOR



KP-S10-2



COLOR



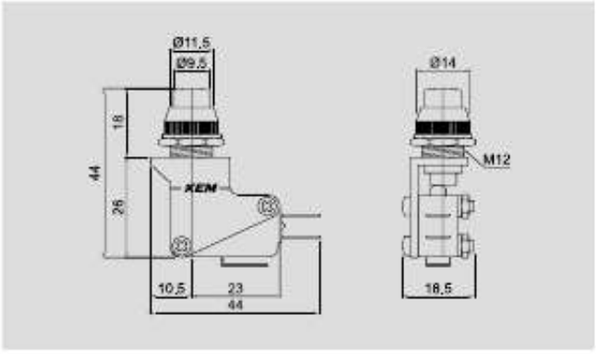
푸쉬 버튼 스위치 PUSH BUTTON SWITCH

KP TYPE

KP-12



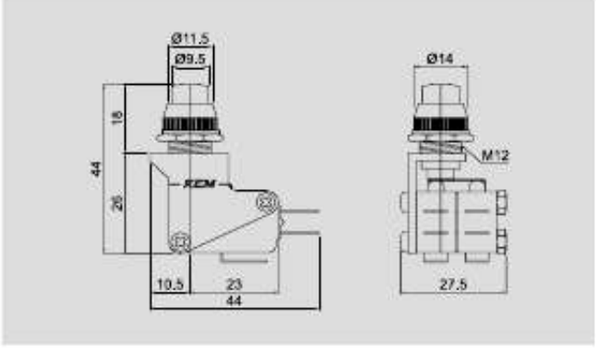
COLOR



KP-12-2



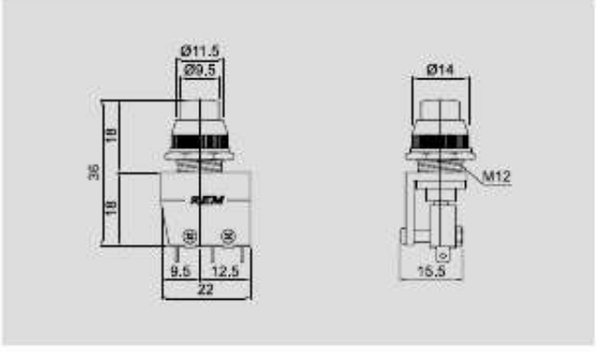
COLOR



KP-S12



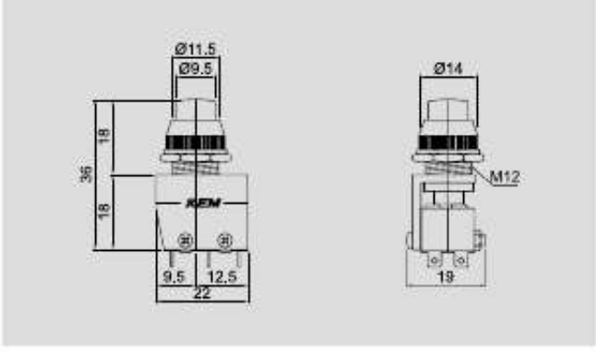
COLOR



KP-S12-2



COLOR



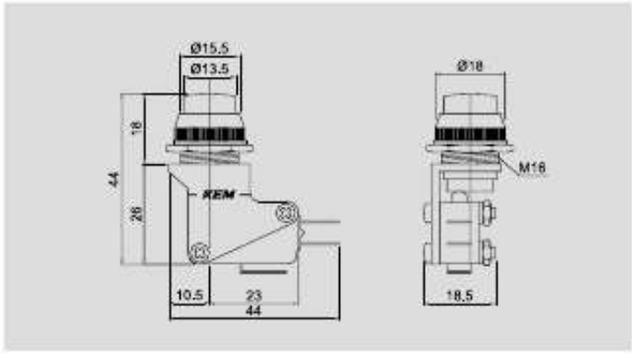
푸쉬 버튼 스위치 PUSH BUTTON SWITCH

KP TYPE

KP-16



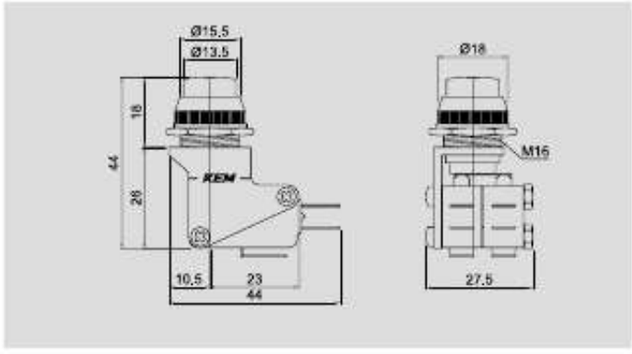
COLOR



KP-16-2



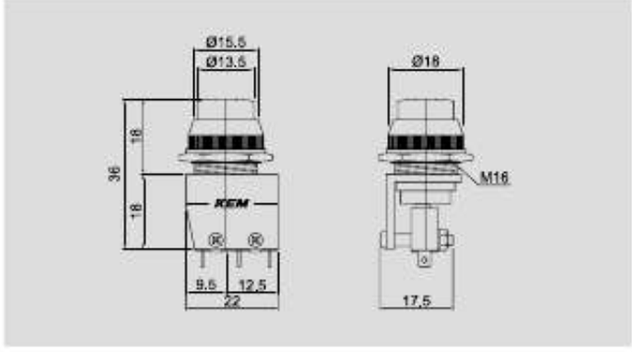
COLOR



KP-S16



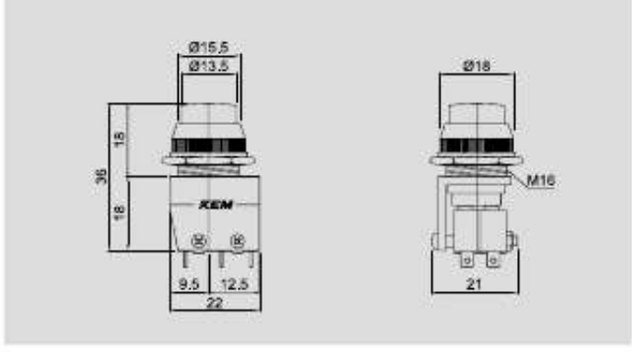
COLOR



KP-S16-2



COLOR



푸쉬 버튼 스위치 PUSH BUTTON SWITCH

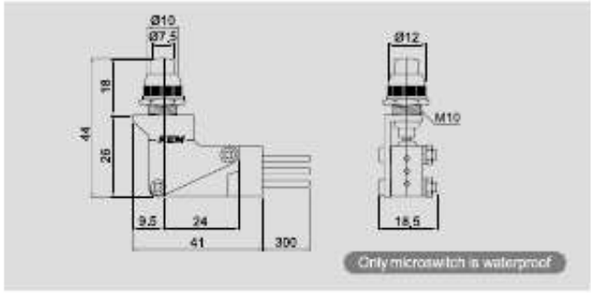
KP TYPE

KPW-10

방수스위치



COLOR

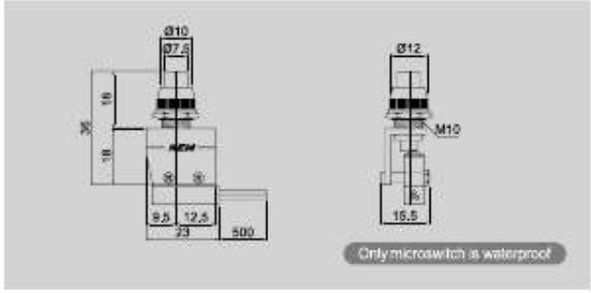


KPW-S10

방수스위치



COLOR

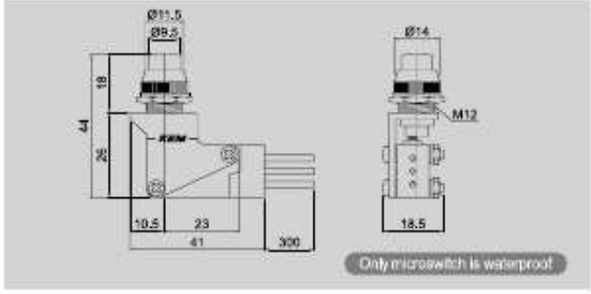


KPW-12

방수스위치



COLOR

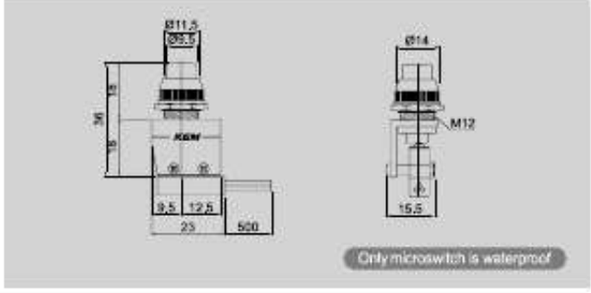


KPW-S12

방수스위치



COLOR

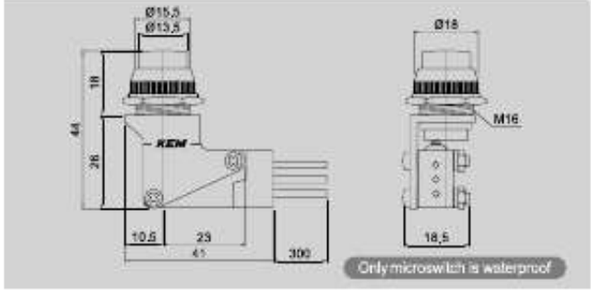


KPW-16

방수스위치



COLOR



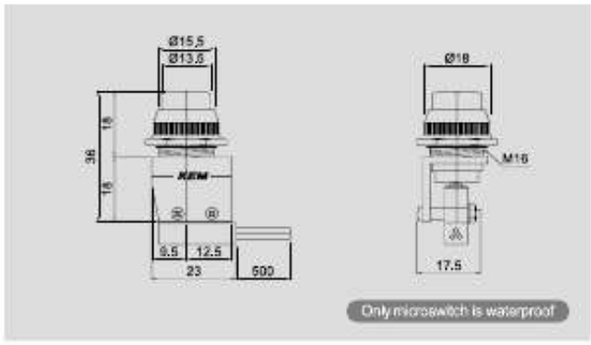
푸쉬 버튼 스위치 PUSH BUTTON SWITCH

KPW-S16

방수스위치



COLOR

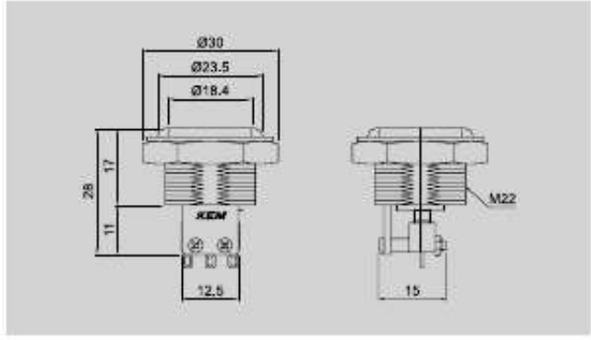


KPU TYPE

KPU-S22



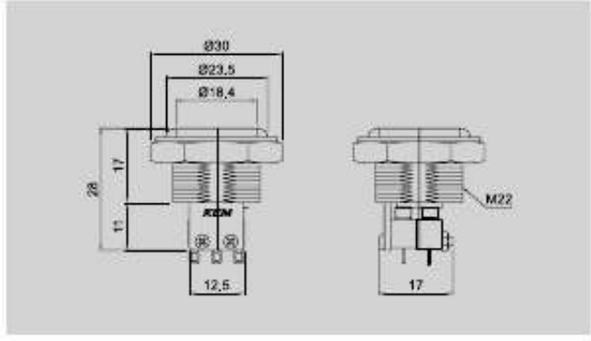
COLOR



KPU-S22-2



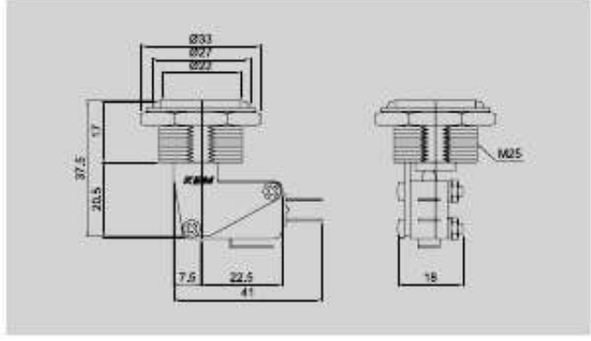
COLOR



KPU-25



COLOR

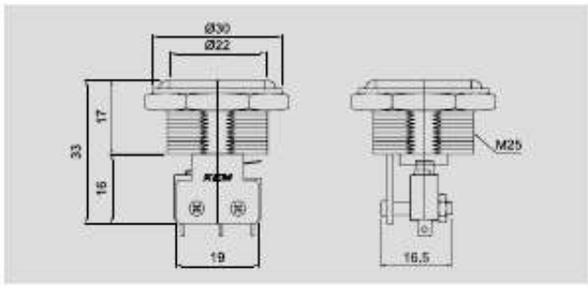


푸쉬 버튼 스위치 PUSH BUTTON SWITCH

KPU-S25



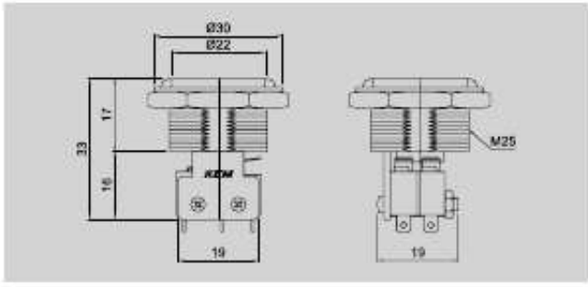
COLOR



KPU-S25-2



COLOR

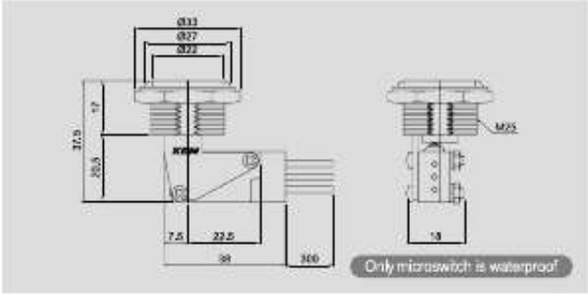


KPUW-25

방수스위치



COLOR

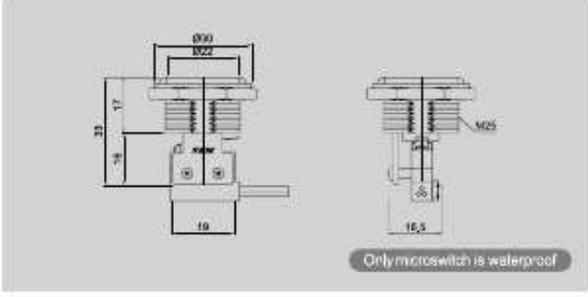


KPUW-S25

방수스위치



COLOR



방수캡형

KPUW-25C

Cap type



COLOR

방수캡형

KPUW-S25C

Cap type



COLOR

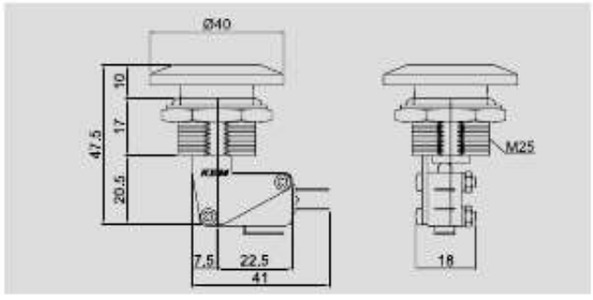
푸쉬 버튼 스위치 PUSH BUTTON SWITCH

KPC TYPE

KPC-25



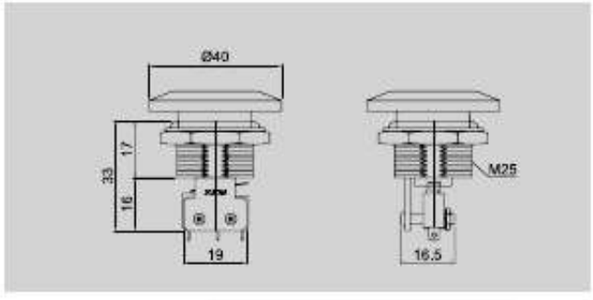
COLOR



KPC-S25



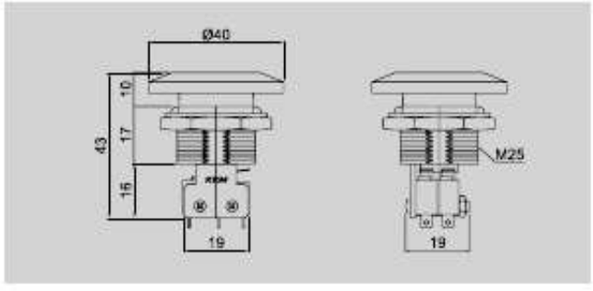
COLOR



KPC-S25-2



COLOR

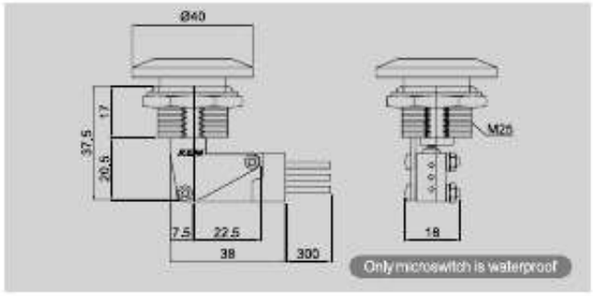


KPCW-25

방수스위치



COLOR

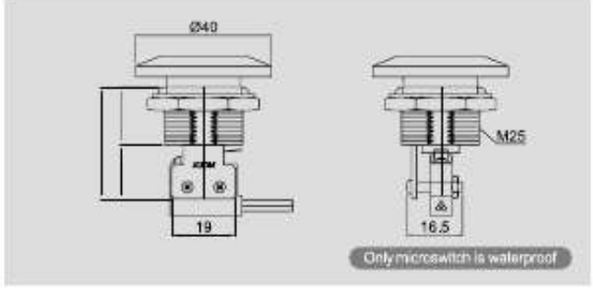


KPCW-S25

방수스위치



COLOR



푸쉬 버튼 스위치 PUSH BUTTON SWITCH

ASSEMBLY
취부



KP TYPE
COLOR



KPU TYPE
COLOR



KPC TYPE
COLOR

CE

CODE SWITCH
코드 스위치



코드 스위치

특 징

1. 완전 밀폐 구조
   완전히 밀폐되어 내유 및 내수효과가 뛰어납니다.
2. 극소 배선
   다단 로터리 스위치가 복잡한 배선으로 코드 조합하는 것에 비해, 본 스위치는 디지털 코드화함에 따라 배선이 단순화 되고 커넥터 연결이 가능합니다
3. 설정치 변경이 간단
   설정치는 SELF-TAPPING 변경으로 간단합니다.
4. 금접점 채용
   이중 슬라이드 금접점으로 항상 안정된 접촉저항을 유지 유지하여 신뢰성이 높습니다.
5. 코드 종류
   콤플리먼트 바이너리 코드와 리얼 바이너리 코드와 리얼그레이코드 3종류가 있으며, 각도는 각각 15° 30° 2종류가 있습니다.
6. 오신호 방지
   코드에 따라 인히비트 단자 또는 패리티 단자가 설정되어 있습니다.

사 양

1. 사용온도 : -20℃ ~ +70℃
2. 회전우력 : 0.1~0.2 N·m (1~2 1kgf·cm)
3. 접촉저항 : DC 5V 1A 저항 100mΩ이하
4. 절연저항 : DC 250V / 1분 / 단자-단자 / 500mΩ≤
   DC 500V / 1분 / 단자-접지 / 25V 0.1A
5. 정 격 : 저항 부하 AC 5V 0.5A 48V 0.05A
   DC 5V 0.25A 25V 0.05A
6. 수 명 : 70,000회

형 식

KDP-□□□-□
① ② ③ ④

①	스텝 각도	12	30°
		24	15°
②	코 드	A	콤프리먼트 바이너리 코드
		B	리얼 바이너리 코드
		G	리얼 그레이 코드
③	핀 수	무	7핀
		F	8핀
④	단자 형식	무	기본형
		C	커넥터형

CODE SWITCH

Characteristics

1. Complete sealing structure
   Completely sealed and has excellent resistance to oil and water.
2. Minimum wiring
   While multi-stage rotary switch combines the code in a complicated wiring our wiring is simplified and connect the connector by using digital code system.
3. Simple change of setting value
   Setting value can be changed simply in SELF-TAPPLING.
4. Adopt contact point made of gold
   Maintain stable friction resistance with double slide contact point and have high reliability.
5. Type of Code
   3 Code types : complement binary, real binary, real gray code, available angles in 2 types : 15°, 30°
6. Prevent wrong signal
   Inhibit terminal or parity terminal are set depending on the code.

Specification

1. Operating Temperature : -20℃ ~ +70℃
2. Rotational torque : 0.1~0.2 N·m (1~2 1kgf·cm)
3. Friction resistance : DC 5V 1A resistance of below 100mΩ.
4. Insulation resistance :
   DC 250V / After 1min / Terminal to terminal / 500mΩ≤
   DC 500V / After 1min / Terminal to ground / 25V 0.1A
5. Rating : Resistance load
   AC 5V 0.5A 48V 0.05A
   DC 5V 0.25A 25V 0.05A
6. Servicelife : 70,000 operations

Type

KDP-□□□-□
① ② ③ ④

①	Step angle	12	30°
		24	15°
②	Code	A	Complement binary code
		B	Real binary code
		G	Real gray code
③	Pin number	None	7 pin
		F	8 pin
④	Terminal type	None	Standard type
		C	Connector type

코드 스위치 CODE SWITCH

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용 할 경우에는 반드시 2중으로 안전 장치를 부착한 후에 사용하십시오.
2. 지정한 정격 이외로 사용시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
3. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지를 확인하십시오.
4. 제품의 분해, 가공, 개조, 수리를 하면 오작동의 원인이 되므로 절대로 하지 마십시오.

주 의

1. 실외에서는 사용하지 마십시오.
2. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
3. 청소시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른수건이나 압축공기 등으로 청소를 하시기 바랍니다.
4. 제품의 설치 및 분리는 전원을 OFF한 후에 실시하여 주십시오.
5. 외부 기기와 결선시 번호를 확인후 배선을 정확하게 결선하여 주십시오.
6. 제품 부착에 관하여 다음과 같은 장소를 피하여 주십시오.
   - 본체에 직접 진동, 충격이 가하여 지는 장소.
   - 티끌과 먼지, 염분, 철분이 많은 장소.
   - 직사 일광을 받는 장소.
7. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고 없이 변경될 수 있습니다.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
3. Before turning on the power, make sure whether the wires are connected correctly.
4. Do not disassemble, process, remedy or repair this product in any case, because it might cause malfunctioning.

Attention

1. Do not use it outside.
2. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
3. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
4. When installation and separation of this product, make sure the power is OFF.
5. When connecting it with external equopments, check the wire number and make sure it is connected correctly.
6. Avoid the following places when installing the product.
   - Place where the main body can receive shock or vibration directly.
   - Place with a lot of dusts, dirts, salts or irons.
   - Place exposed with a direct sunlight.
7. The specifications (colors and parts of design, etc.) are subject to change without prior notice for quality improvement of the product.

코드 스위치 CODE SWITCH

사 양 / Specification

	Model	Step angle		Code			Pin number		Standard type	MOLEX 5267-07A-X
		30°	15°	Complement binary	Real binary	Real gray	7 pin	8 pin		
KDP TYPE	KDP-12A	●		●			●		●	
	KDP-12B	●			●		●		●	
	KDP-12G	●				●	●		●	
	KDP-24A		●	●			●		●	
	KDP-24B		●		●		●		●	
	KDP-24G		●			●	●		●	
	KDP-12AF	●		●				●	●	
	KDP-12BF	●			●			●	●	
	KDP-12GF	●				●		●	●	
	KDP-24AF		●	●				●	●	
	KDP-24BF		●		●			●	●	
	KDP-24GF		●			●		●	●	
	KDP-12A-C	●		●			●			●
	KDP-12B-C	●			●		●			●
	KDP-12G-C	●				●	●			●
	KDP-24A-C		●	●			●			●
	KDP-24B-C		●		●		●			●
	KDP-24G-C		●			●	●			●
	KDP-12AF-C	●		●				●		●
	KDP-12BF-C	●			●			●		●
	KDP-12GF-C	●				●		●		●
	KDP-24AF-C		●	●				●		●
	KDP-24BF-C		●		●			●		●
	KDP-24GF-C		●			●		●		●

콤프리먼트 바이너리 코드 (COMPLEMENT BINARY CODE)

■ MODEL : KDP-12A (30°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value											
		0	1	2	3	4	5	6	7	8	9	10	11
A	1	•		•		•		•		•		•	
F	2	•	•			•	•			•	•		
B	4	•	•	•	•					•	•	•	•
E	8	•	•	•	•	•	•	•	•				
C	P		•	•		•			•	•			•
G	INH	•	•	•	•	•	•	•	•	•	•	•	•
D	COM												

■ MODEL : KDP-24A (15°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	1	•		•		•		•		•		•		•		•		•		•		•		•	
F	2	•	•			•	•			•	•			•	•			•	•			•	•		
B	4	•	•	•	•					•	•	•	•					•	•	•	•				
E	8	•	•	•	•	•	•	•	•									•	•	•	•	•	•	•	•
C	16	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
G	INH	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D	COM																								

INH : 인히비트 단자(Inhibit terminal) / P : 패리티 단자(Parity terminal) / ● : ON 상태(ON Status)

리얼 바이너리 코드 (REAL BINARY CODE)

■ MODEL : KDP-12B (30°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value											
		0	1	2	3	4	5	6	7	8	9	10	11
A	1		•		•		•		•		•		•
F	2			•	•			•	•			•	•
B	4					•	•	•	•				
E	8									•	•	•	•
C	P		•	•		•			•	•			•
G	INH	•	•	•	•	•	•	•	•	•	•	•	•
D	COM												

■ MODEL : KDP-24B (15°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value																							
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A	1		•		•		•		•		•		•		•		•		•		•		•		•
F	2			•	•			•	•			•	•			•	•			•	•			•	•
B	4					•	•	•	•					•	•	•	•					•	•	•	•
E	8									•	•	•	•	•	•	•	•								
C	16																	•	•	•	•	•	•	•	•
G	INH	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
D	COM																								

INH : 인히비트 단자(Inhibit terminal) / P : 패리티 단자(Parity terminal) / ● : ON 상태(ON Status)

코드 스위치 CODE SWITCH

리얼 그레이 코드 (REAL GRAY CODE)

■ MODEL :KDP-12G (30°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value											
		0	1	2	3	4	5	6	7	8	9	10	11
A			•	•			•	•			•	•	
F				•	•	•	•					•	•
B						•	•	•	•	•	•	•	•
E											•	•	•
C	P		•		•		•		•		•		•
G													
D	COM												

■ MODEL :KDP-24G (15°)

단자 Terminal	비트 No. Bit No.	설정치 Setting value																						
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
A			•	•			•	•			•	•			•	•			•	•			•	•	
F				•	•	•	•					•	•	•	•					•	•	•	•		
B						•	•	•	•	•	•	•										•	•	•	•
E									•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
C																		•	•	•	•	•	•	•	•
G	P		•		•		•		•		•		•		•		•		•		•		•		•
D	COM																								

INH : 인히비트 단자(Inhibit terminal) / P : 패리티 단자(Parity terminal) / ● : ON 상태(ON Status)

단수 조절법 / Stage adjustment method

단수조절은 상측의 A,B,C···에 대응하는 Hole에 Bolt식 Stopper핀으로 고정합니다.

When you adjust the stages, put the bolt stopper pin in the hole representing A, B, C, and so on.

예) KDP-12□ (30°)

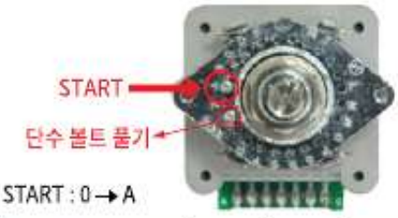
8단 설정시 (0~8) START : A / END : S

11단 설정시 (0~11) START : A / END : NONE

Example) KDP-12□ (30°)

8 stages set-up (0~8) START : A / END : S

11 stages set-up (0~11) START : A / END : NONE



START : 0 → A



END : 8 → S

설정치 / Set values	0	1	2	3	4	5	6	7	8	9	10	11
Stopper 위치 Location of the Stopper	A	C	E	G	I	K	M	O	Q	S	U	W	A

Start 측 Stopper 위치 / Locatrion of the Stopper on Start side.

End 측 Stopper 위치 /Locatrion of the Stopper on End side.

예) KDP-24□ (15°)

22단 설정시 (0~22) START : A / END : NONE

23단 설정시 (0~23) (360° 회전) START : NONE / END : NONE

Example) KDP-24□ (15°)

22 stages set-up START : A / END : NONE

23 stages set-up (360° rotating) START : NONE / END : NONE

설정치 / Set values		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Stopper 위치 Location of the Stopper	Start 측 Start side	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
	End 측 End side	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	A	360°

코드 스위치 CODE SWITCH

KDP TYPE

STANDARD TYPE





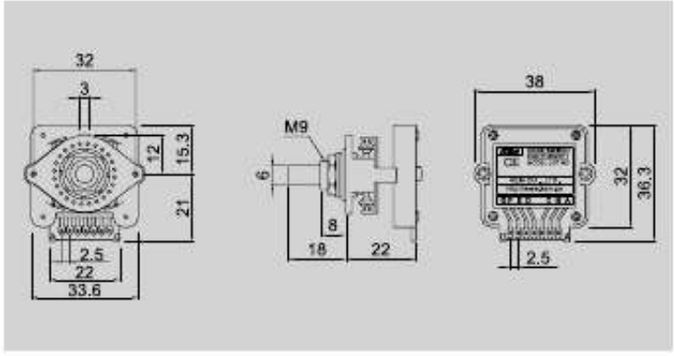
CONNECTOR TYPE



---

7 pin

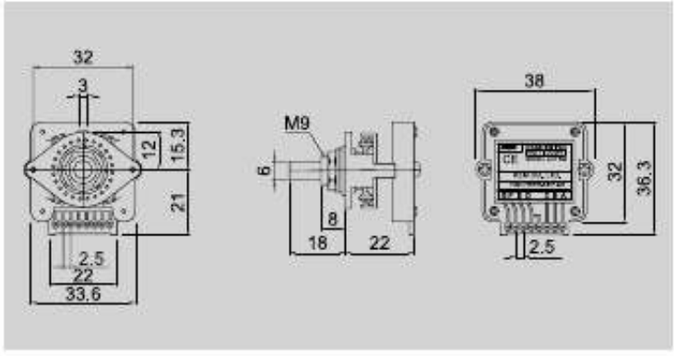




---

8 pin





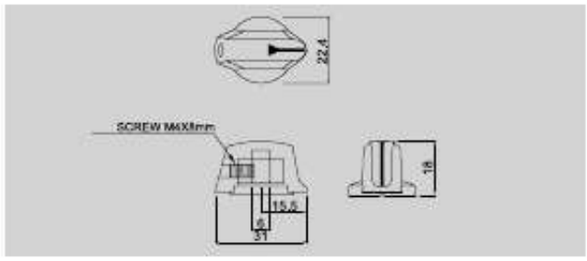
KNOB
노브



노브 KNOB

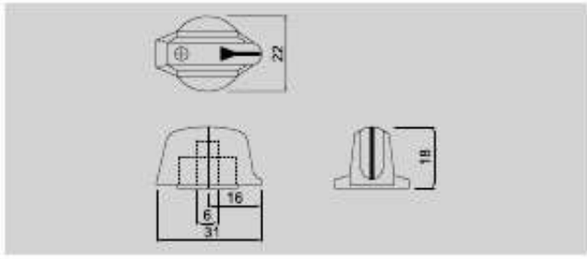
KNB-30S





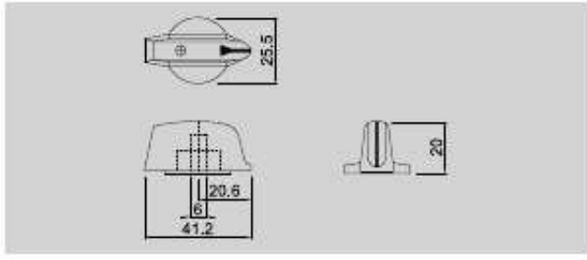
KNB-30SG





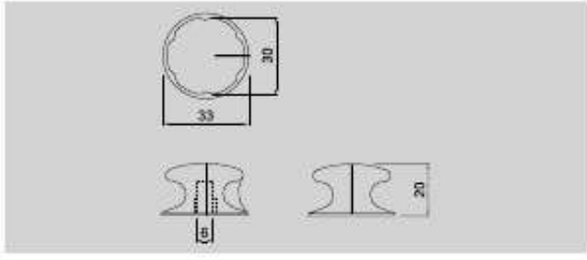
KNB-42L





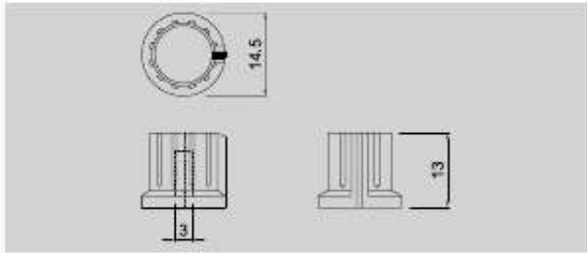
KNB-33R





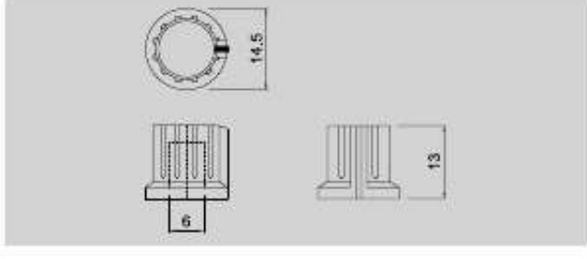
KN11-3





KN11-6

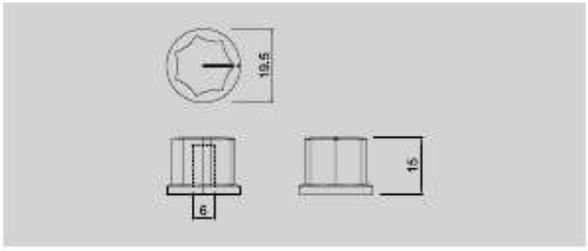




노브 KNOB

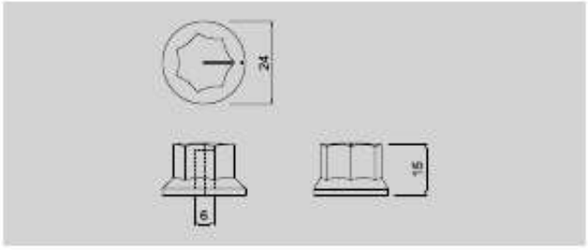
KN13-1





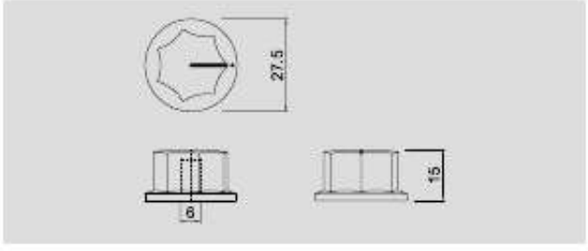
KN13-2





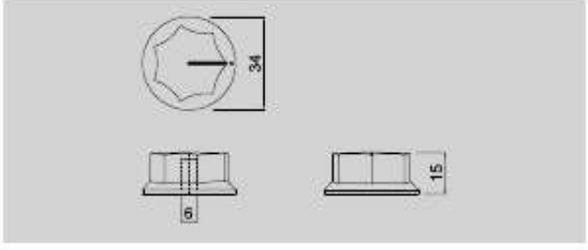
KN13-3





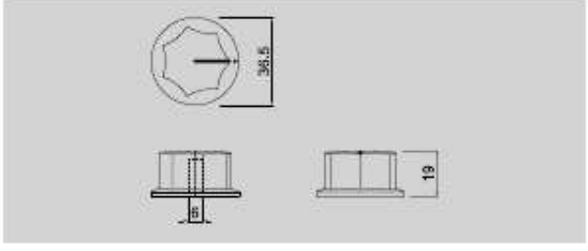
KN13-4





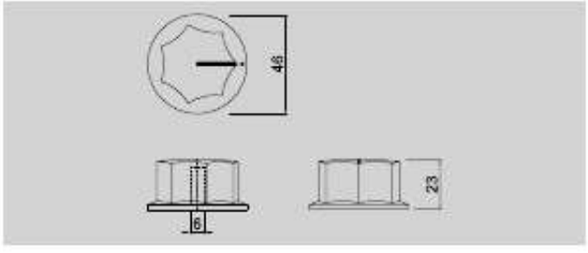
KN13-5





KN13-6





ROTARY SWITCH
로타리 스위치



로타리 스위치 ROTARY SWITCH

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 지정한 정격 이외로 사용 시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
3. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지 확인하십시오.
4. 제품의 분해, 가공, 개조, 수리를 하면 오작동의 원인이 되므로 절대로 하지 마십시오.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, It should be used after the double safety device is attached.
2. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
3. Before turning on the power, make sure whether the wires are connected correctly.
4. Do not disassemble, process, remedy or repair this product in any case, because it might cause malfunctioning.

주 의

1. 실외에서는 사용하지 마십시오.
2. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
3. 청소시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른수건이나 압축공기 등으로 청소를 하시기 바랍니다.
4. 제품의 설치 및 분리는 전원을 OFF한 후에 실시하여 주십시오.
5. 외부 기기와 결선시 번호를 확인 후 배선을 정확하게 결선하여 주십시오.
6. 제품 부착에 관하여 다음과 같은 장소를 피하여 주십시오.
   - 본체에 직접 진동, 충격이 가하여 지는 장소.
   - 티끌과 먼지, 염분, 철분이 많은 장소
   - 직사 일광을 받는장소.
7. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고 없이 변경될 수 있습니다.

Attention

1. Do not use it outside.
2. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
3. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
4. For installation and separation of this product, make sure the power is OFF.
5. When connecting it with external equipments, check the wire number and make sure it is connected correctly.
6. Avoid the following places when installing the product.
   - Place where the main body can receive shock or vibration directly.
   - Place with a lot of dusts, dirts, salts or irons.
   - Place exposed with a direct sunlight.
7. The specifications (colors and parts of design, etc.) are subject to change without prior notice for quality improvement of the product.

로타리 스위치

특 징

1. ROTARY SWITCH의 회로는 일반적으로 1회로부터 9회로까지 조립식으로 되어있어 회로에 따라 선택할 수 있으므로 경제적입니다.
2. 사용 접점수의 선택 방법은 스톱바 볼트(Stopper Bolt)를 이용하여 간단히 변경되므로 사용이 편리합니다.
3. 다이얼 스탭(Dial Step)각도는 26회로(AP)를 선택할 때는 360°/26회로로 Step각도가 정해지고, 13회로(AA)를 선택할 때는 360°/13회로로 Step각도가 정해집니다.
4. 이동 접점이 접점단자에서 옆 접점단자가 회전할 때 완전히 OFF상태로 변환 후 다음 접점이 ON상태로 되는 360°/13접점과 OFF상태로 되지 않고 다시 옆 접점과 ON상태로 되는 360°/26접점 2종류가 있습니다.
5. 특수 구조에 의한 조립식 다단, 다련으로 설계되었으며 최대 360°/26단 10련까지 제작이 가능합니다.

사 양

접촉 저항	10 mΩ 이하(DC 3A, 1A)
허용 전압	AC 250V (1.7A 이하)
허용 전류	AC 3A (10V 이하) DC 3A (10V 이하)
접촉자 용량	DC 20W, AC 45W
절연 저항	500MΩ 이상 (DC 500V)
내전압	AC 500V, 1분간
회전 토크	1회로 0.8~2.5Kg/㎠
	2회로 0.9~3.0Kg/㎠
	3회로 1.0~3.5Kg/㎠
	4회로 1.1~4.0Kg/㎠
	5회로 1.2~4.5Kg/㎠
	6회로 1.3~5.0Kg/㎠
	7회로 1.4~5.5Kg/㎠
	8회로 1.5~6.0Kg/㎠
	9회로 1.6~6.5Kg/㎠

형 식

KR-□11□

① ②

①	회로	1	1 회로
		2	2 회로
		3	3 회로
		4	4 회로
		5	5 회로
		6	6 회로
		7	7 회로
		8	8 회로
		9	9 회로
②	접점	AA	13접점 (27.7°)
		AP	26접점 (13.85°)

ROTARY SWITCH

Characteristics

1. Series number is prefabricated from 1 to 9, thus allows for choice according to circuits, so its very economical.
2. It's very convenient. Because the contact points can be easily changed by using the stopper bolt.
3. When the 26 circuit(AP) is selected, the degree of dial step is 360°/26 circuit. When the 13 circuit(AA) is selected, the degree of dial step is 360°/13 circuit.
4. There are 2 kinds of the 360°/13 contact point which turns to the next contact point at the complete off position and 360°/26 contact point which turns to the next contact point at not off position.
5. It's special structure enables to assemble multi steps and series numbers. (up to 360°/26 step and 10 poles numbers)

Specification

Contact resistance	Less than 10 mΩ(DC 3A, 1A)
Allowable voltage	AC 250V(Less than 1.7A)
Allowable current	AC 3A (10V Less than) DC 3A (10V Less than)
Contact point capacity	DC 20W, AC 45W
Insulation resistance	More than 500MΩ (DC 500V)
Withstanding voltage	AC 500V, For one minute
Torque	1 pole 0.8~2.5Kg/㎠
	2 poles 0.9~3.0Kg/㎠
	3 poles 1.0~3.5Kg/㎠
	4 poles 1.1~4.0Kg/㎠
	5 poles 1.2~4.5Kg/㎠
	6 poles 1.3~5.0Kg/㎠
	7 poles 1.4~5.5Kg/㎠
	8 poles 1.5~6.0Kg/㎠
	9 poles 1.6~6.5Kg/㎠

Type

KR-□11□

① ②

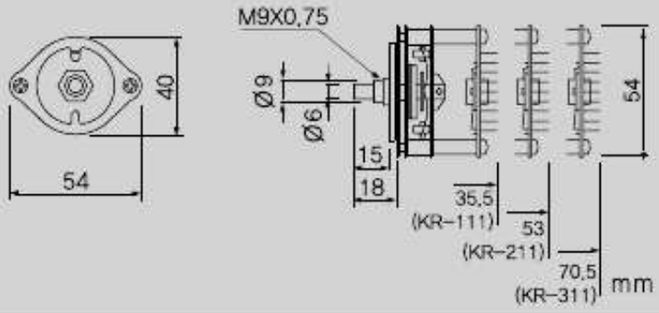
①	Poles	1	1 Pole
		2	2 Poles
		3	3 Poles
		4	4 Poles
		5	5 Poles
		6	6 Poles
		7	7 Poles
		8	8 Poles
		9	9 Poles
②	Contact point	AA	13 C.P (27.7°)
		AP	26 C.P (13.85°)

로타리 스위치 ROTARY SWITCH

KR TYPE

KR-111 **KR-211** **KR-311** **KR-411** **KR-511**





모델 / Model	길이 / Length	모델 / Model	길이 / Length
KR-111	35.5	KR-611	123
KR-211	53	KR-711	140.5
KR-311	70.5	KR-811	158
KR-411	88	KR-911	175.5
KR-511	105.5		

KR-611 **KR-711** **KR-811, KR-911**



단수 조절 방법

1. ROTARY SWITCH를 1단으로 위치 고정합니다.
2. KNOB(손잡이) 위의 흑색볼트를 돌려서 빼냅니다.
3. KNOB(손잡이)를 해체한 후 KNOB 사각 지지대를 해체합니다.
4. BRAKET 양쪽의 접시 볼트를 풀고 BRAKET를 빼냅니다.
5. 중앙 샤프트 부근에 있는 작은 볼트 2EA를 1.5 바퀴 정도 풀어놓습니다.
6. KNOB 사각 지지대에 샤프트를 가부착합니다.
7. 작은 볼트에 부착되어 있는 단수 고정 레버 2EA 중 1EA를 단수에 맞추는 위치까지 이동시킨 후 KNOB 사각 지지대를 돌려 원하는 단수에 단수 고정 레버가 정위치에 있는지 확인 합니다.
8. 가부착된 KNOB 사각 지지대를 해체 합니다.
9. BRAKET을 방향에 맞게 삽입한 후 접시 볼트 2EA를 고정 시킵니다.
10. KNOB 사각 지지대는 1단 방향으로 고정되게 합니다.
11. KINOB(손잡이)를 사각 지지대에 고정되게 합니다.
12. 단수가 맞는지 최종 확인 합니다.

* 자세한 내용은 홈페이지 동영상을 참조하세요.

Way to control step

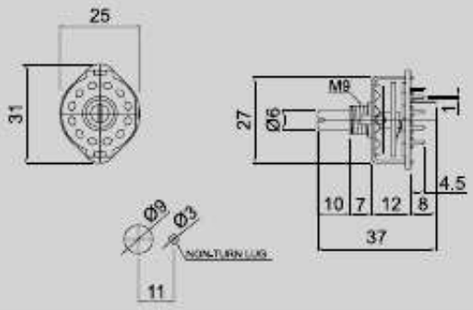
1. Fix the ROTARY SWITCH to the direction of 1step.
2. Turn and pick out the bolt in black above KNOB.
3. After dismantling the KNOB, then dismantle the square support.
4. After releasing the flat headed bolt on either side of the BRAKET, pick out te BRACKET.
5. Loosen the 2EA of small bolt in near the middle of shaft by rotating 1.5 wheel.
6. Temporarily attach the square support of KNOB.
7. After moving the 1EA from 2 EA of gear lever in fixed step to direction which adjust te step to, confirm the gear lever in fixed step at correct direction by rotating the square support of KNOB.
8. Dismantle the square support of KNOB temporarily attached in shaft.
9. After inserting the BRAKET to the right direction fix the 2 EA of the flat headed bolt.
10. Fix the square support of KNOB to the direction of 1step.
11. Fix the KNOB at the square support.
12. Finally confirm that step is correct.

* For details, please refer to the video at our homepage.

KRT TYPE



- ACTION : ROTARY
- RATING : 0 25A 30V DC
- POSITION : 1-POLE
  12-POSITION
- ROTATION ANGLE : 30°



형 식

KRT-□

①

①	련수/접점	102	1회로 2접점
		107	1회로 7접점
		108	1회로 8접점
		109	1회로 9접점
		110	1회로 10접점
		111	1회로 11접점
		112	1회로 12접점
		205	2회로 5접점 (105 대체)
		206	2회로 6접점 (106 대체)
		304	3회로 4접점 (104 대체)
		403	4회로 3접점 (103 대체)

Type

KRT-□

①

①	Pole/ Position	102	1pole 2position
		107	1pole 7position
		108	1pole 8position
		109	1pole 9position
		110	1pole 10position
		111	1pole 11position
		112	1pole 12position
		205	2pole 5position (Replacement:105)
		206	2pole 6position (Replacement:106)
		304	3pole 4position (Replacement:104)
		403	4pole 3position (Replacement:103)

로타리 스위치 ROTARY SWITCH

KRS TYPE

특 징

1. 리드 스위치를 사용하여 응답성이 빠릅니다.
2. 정확한 60°, 90°의 각도를 검출할 수가 있습니다.

Characteristics

1. Fast Responsibility : Using of a reed switch.
2. Accurate Angles of 60°, 90°.

형 식

KRS-0300 □

①

①	접점	4K	4극(90°)
		6K	6극(60°)

Type

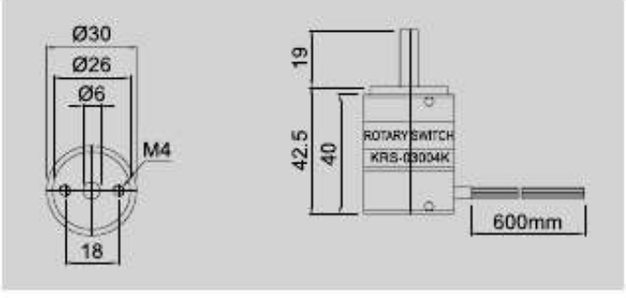
KRS-0300 □

①

①	Contact Point	4K	4C.P. (90°)
		6K	6C.P. (60°)

KRS-03004K

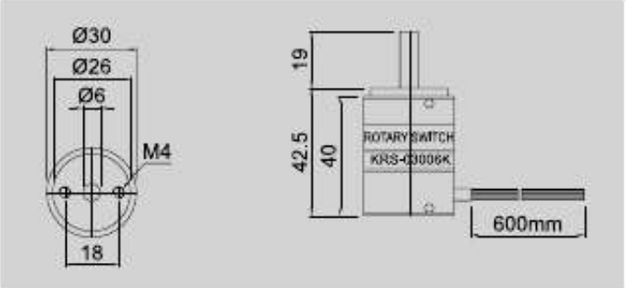




WIRE COLOR	백 (WHITE)	갈 (BROWN)	적 (RED)	주 (ORANGE)	노 (YELLOW)
STEP	COM	1	2	3	4
ANGLE	0°	90°	180°	270°	360°

KRS-03006K



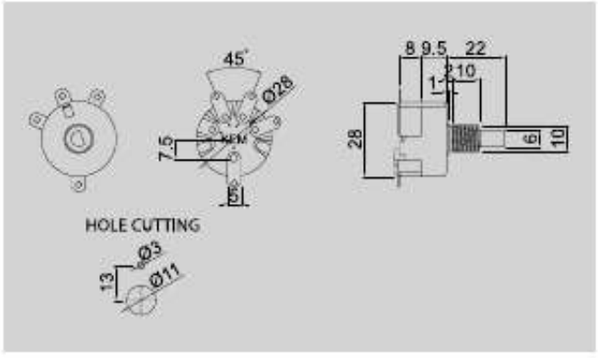


WIRE COLOR	백 (WHITE)	갈 (BROWN)	적 (RED)	주 (ORANGE)	노 (YELLOW)	녹 (GREEN)	파 (BLUE)
STEP	COM	1	2	3	4	5	6
ANGLE	0°	60°	120°	180°	240°	300°	360°

KRP TYPE

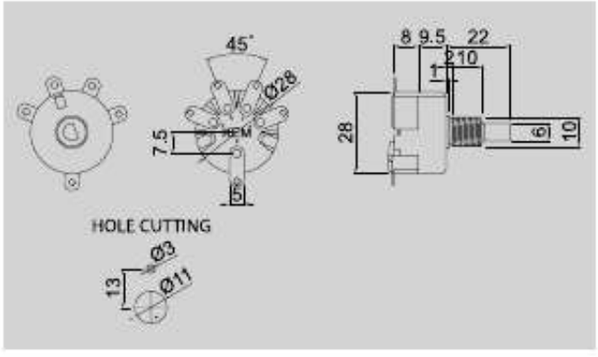
KRP-103





KRP-104





사 양

허용 전압		AC 250V 3A
내전압		AC 1000V, 1분간
절연 저항		100MΩ이하 (DC 500V 이하)
수명	전기적	10,000회 이하
	기계적	10,000회 이하
접점 각도		45°
회전 토크		3N.cm ~ 15N.cm

Specification

Allowable voltage		AC 250V 3A
Withstanding voltage		AC 1000V, For one minute
Insulation resistance		Less than 100MΩ(Less than DC 500V)
Life	Electrical	Less than 10,000 times
	Mechanical	Less than 10,000 times
Rotation angle		45°
Torque		3N.cm ~ 15N.cm

형 식

KRP-10□

①

①	접점	3 접점
		4 접점

Type

KRP-10□

①

①	Contact point	3 Contact point
		4 Contact point

S P D

SURGE PROTECTIVE DEVICE

써지 보호 장치



써지 보호 장치 SPD

특 징

1. 콤팩트한 형태로 써지 내량(耐量)이 큽니다.
2. 분전함 등에 직접 설치 가능합니다.
3. 급준(急峻)한 써지에 대해서 동작 지연 현상이 없으며 응답성이 우수합니다.
4. 확실한 보호 효과를 얻기 위해 제한 전압이 낮습니다.
5. 과전(過電)수명은 정격을 초과하지 않는 써지입니다.

Characteristics

1. As the compact size, it is endured big surge.
2. Can be directly installed at the distribution panel.
3. Excellent response without delay in operation to abrupt surge.
4. Low clamping voltage to get definite protection effects.
5. Service life is not valid in excessive surge.

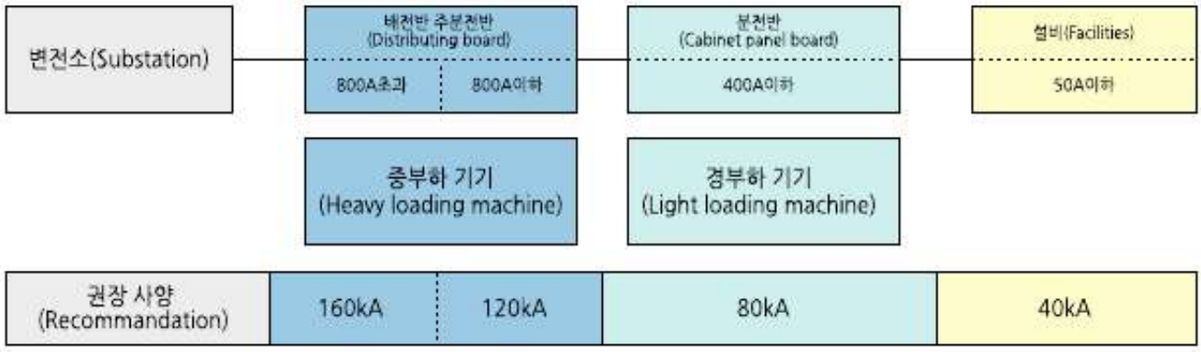
용 도

1. 써지 내량.
2. 철도 신호 장치 보호.
3. 방송 통신 중계소 보호.
4. 수도 시설 등의 써지 대책.
5. 통신 계측, 제어 장치 보호.
6. 배전선 자동 제어 장치 보호.
7. 에스컬레이터, 엘리베이터 제어반 보호.
8. 입력 측 저압수, 배전함 메인 인입 전원용에 사용.
9. UPS 입출력, CCTV, DCS, PLC, SCADA.
10. VMS 전광판, SERVICE ENTRANCE.
11. 철도, 지하철 방송국, 통신 기지국에 사용.
12. 공업용 기계, 산업용 컴퓨터 판넬에 사용.
13. 울타리 감지 시스템 전원에 사용.
14. 농장, 백화점, 운동장, 은행, 병원, 제조 사업장, 박물관, 전신 전화국, 정유 공장, 주유소, 화학공장에 사용.
15. 태양광발전설비, 원자력발전설비, 풍력발전설비 보호.

Use

1. Endurance of surge.
2. Protect railway signal device.
3. Protect the broadcasting relay station.
4. Lightening surge meaure for water facility.
5. Protect communication Instrumantation and controlling device.
6. Protect automatic control device of distributioncord.
7. Escalator, Elevator control panel protection.
8. Input low voltage, Distributing box use in the main incoming power supply.
9. UPS input/out put, CCTV, DCS, PLC, SCADA.
10. VMS electronc display, SERVICE ENTERANCE.
11. Used in train, Subway network, Communication base stations.
12. Used in manufacturing machine, Industrial computer panel.
13. Fence detection system power.
14. Use in farm, epartment store, play grounds, bank, hospital, manufacturing plant, Museum, telegraph telephone company, oil refinery plant, petrol station, chemical plants, nuclear powered plants.
15. Solar power plant, nuclear power plant, wind power plant.

적 용 / Application



써지 보호 장치

S P D

사용환경

- 사용온도 : -50℃~+85℃
- 저장온도 : -50℃~+125℃
- 습 도 : 85%

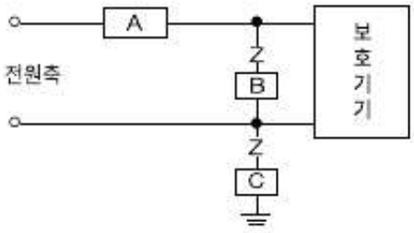
Usable condition

- Use temperature : -50℃~+85℃
- Place temperature : -50℃~+125℃
- Humidity : 85%

사용상의 주의사항

피뢰기가 정격에 초과하지 않는 써지가 침입 했을 때 단락 또는 파괴의 위험이 있으므로 다음과 같은 대책을 추천합니다.

- 피뢰기는 과전류 보호장치 A (브레커, 누전차단기 휴즈 기타 등) 보다 가까운 기기측에 설치해서 피뢰기가 단락시에는 신속하게 전원으로부터 분리시켜 주십시오.
- A에 과전류보호 장치를 설치할 수 없을 때에는 B에 설치해 주십시오.

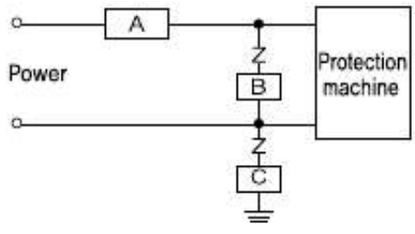


- 선 - 대지간 피뢰기가 기기케이스에 접지되었을 때 충분히 낮은 접지 저항을 얻을 수 없을 때는 A에 누전 차단기를 사용하거나 C 열반응성 온도휴즈를 설치해 주십시오. 직사광선이나 발열체 근방에 사용할 때는 정격온도 사용 범위 내에 있는지를 확인하고 사용해 주십시오.
- 먼지나 쇳가루, 비와 이슬이 내리는 곳, 염해 오염의 우려가 있는 곳에 부득이 사용할 경우에는 보호용기 안에 넣어서 사용해 주십시오. (보호 용기를 사용할 것.)
- 피뢰기 결선용으로는 600V 비닐절연전선(IV선), 2㎟ 또는 동등 이상의 것을 사용해주십시오. (접지선은 5.5㎟ 이상)
- 피뢰기 결선은 되도록 짧고 직선적으로 해주십시오.
- 전기시설 유도뇌 써지 대책용으로는 써지 내량 20,000A를 사용해 주십시오.

Instructions for use

We recommend the following measures since there is a risk of short or destruction when surge substantially exceeding the rating penetrates into the arrestor.

- Install the arrestor closer to the device than the overcurrent protection device A (breaker, leakage circuit breaker fuse, etc.) and immediately separate it from the power when it is shorted.
- Install the overcurrent protection device at B if it cannot be installed at A.



- Use leakage circuit breaker at A or install the C heat-response temperature fuse if the arrector is grounded on the device case or fully low earth resistance cannot be obtained. Check whether it is within the usage scope of rating temperature when using it near direct sunlight or heat element.
- Pit in the protection cover when you must use it in the place with dust, iron dust, exposed to rain or dew or likely to have problem of salt pollution. (Use protection cover)
- Use 600V vinyl resistance cord(IV cord), 2㎟ or equivalent for wiring of arrestor. (Over 5.5㎟ in case of earth line)
- Wiring of arrestor should be as straight and short as possible.
- Use the arrestor with surge endurance of 20,000A for the measurement of electricity facility induction lightening surge.

써지 보호 장치 SPD

KBL Type 사용상의 주의사항

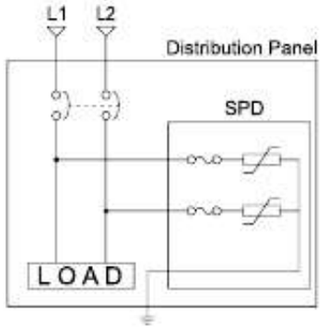
1. SPD 설치 시 전원을 차단 하십시오.
2. SPD 제품은 전선의 길이를 짧게 설치할수록 보호 성능이 우수해 집니다.
3. 분전함, UPS, AVR 등 보호 대상 장비의 전압과 접지선을 확인하고 가능한 장비 주변 적합한 곳에 설치하십시오.
4. 작업 완료시 전원을 투입 하십시오.
5. 전원 투입시 LAMP가 점등되면 정상입니다.
(만약 표시등이 점등되지 않을시 차단기 전원을 내린 후 다시 한 번 전선의 연결 상태를 확인하여 주십시오.)

KBL Type Instructions for use

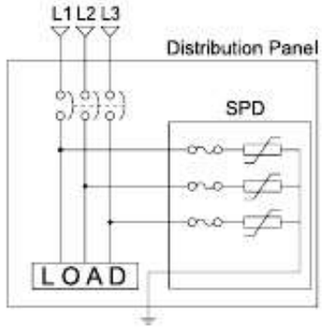
1. Turn off the power when SPD is installed.
2. As the shorter length of wire, better the protective performance.
3. Please check Distributing box, UPS, AVR protection equipment's voltage and ground cable and please install as soon as possible where it needed.
4. Once the installment is finished, turn on the power.
5. Lamp is light up when power on, the installment is done properly. (If the status light didn't turn on, please lower crossing gate to check length of wire connection.)

회로도 / Curcuit

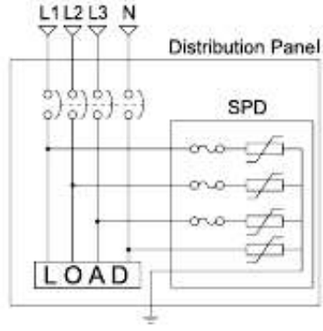
■ K Type - 2Y
(단상전원접지형 / Single phase+E)



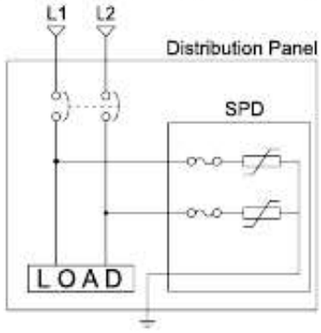
■ K Type - 3Y
(삼상전원접지형 / Three phase+E)



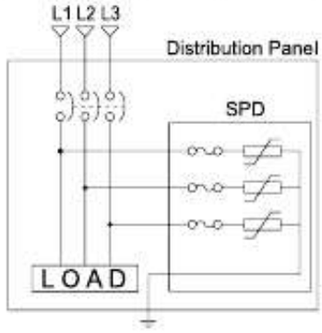
■ K Type - 4Y
(삼상전원N접지형 / Three phase+N+E)



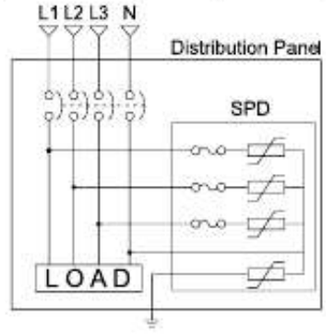
■ KBL Type - 2Y
(단상전원접지형 / Single phase+E)



■ KBL Type - 3Y
(삼상전원접지형 / Three phase+E)



■ KBL Type - 4Y
(삼상전원N접지형 / Three phase+N+E)



써지 보호 장치 SPD

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 반드시 판넬에 취부하여 사용 하십시오. 감전, 오작동, 고장의 원인이 됩니다.
3. 감전방지 및 기기 고장 방지를 위하여 모든 배선이 종료될 때까지 전원을 투입하지 마십시오.
4. 지정한 정격 이외로 사용시에는 상해를 입거나 재산상의 손실이 발생 할 수 있으므로 주의하여 주십시오.
5. 본 기기의 탈착은 전원을 OFF 한 후 조치하십시오. 감전, 오작동, 고장의 원인이 됩니다.
6. 통전 중에 본 기기를 분해하거나 단자에 접촉하지 마십시오. 감전, 오작동의 위험이 있습니다.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In any case, it should be used while being attached on the panel. It might cause eletric shock or malfinctioning
3. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
4. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
5. To separate the product, turn off the power supply first. It might cause electric shock, malfunctioning or breakdown.
6. Do not disassemble, process, remedy or repair this product in any case, because it might cause malfunctioning.

주 의

1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시길 바랍니다.
5. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고없이 변경될 수 있습니다.

Attention

1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. In case of contacting water, make sure it is throughly inspected before use in order to prevent leakage of electricity or fire.
5. The specifications (colors and parts of design, etc.) are subject to change without prior notice for quality improvement of the product.

써지 보호 장치 SPD

사 양 / Specification

단상형 / Single phase type

Parts No.	Maximum continuous operating voltage(Uc)		Energy	Rated Wattage	Withstanding Surge Current	Nominal voltage at 1mA(DC) current	Maximum clamping voltage (8/20μs)	kA
	AC(rms) (V)	DC (V)	10/1,000 μs (J)	(w)	8/20 μs 1 Time (A)	(V)	VC_{10kA}(V)	
K20E390	25	31	14.6	0.2	3,000	39(35~43)	* 77	3kA
K20E560	35	45	21			56(50~62)	* 110	
K20E680	40	56	25.5			68(61~75)	* 135	
K20E820	50	65	30.8	1.0	10,000	82(74~90)	135	10kA
K20E271	175	225	101.3			270(243~297)	455	
K20E471	300	385	176.3			470(423~517)	775	
K20E681	420	560	232.6			680(612~748)	1,120	
K20E821	510	670	246			820(738~902)	1,355	
K20E102	625	825	300			1,000(900~1,100)	1,650	
K20E152	900	1,220	449			1,500(1,350~1,650)	2,475	
K20E182	1,000	1,465	540			1,800(1,620~1,980)	2,970	
K25E271	175	225	170	1.0	15,000	270(243~297)	455	15kA
K25E471	300	385	225			470(423~517)	775	
K25E681	420	560	250			680(612~748)	1,120	
K25E821	510	670	300			820(738~902)	1,355	
K25E102	625	825	375			1,000(900~1,100)	1,650	
K25E152	900	1,220	500			1,500(1,350~1,650)	2,475	
K25E182	1,000	1,465	700			1,800(1,620~1,980)	2,970	
K32E201	130	170	210	1.2	20,000	200(185~225)	340	20kA
K32E271	175	225	255			270(243~297)	455	
K32E471	300	385	405			470(423~517)	775	
K32E681	420	560	450			680(612~748)	1,120	
K32E821	510	670	545			820(738~902)	1,355	
K32E102	625	825	620			1,000(900~1,100)	1,650	
K32E152	900	1,220	780			1,500(1,350~1,650)	2,475	
K32E182	1,000	1,465	850			1,800(1,620~1,980)	2,970	
K40E201	130	170	340	1.4	40,000	200(185~225)	340	40kA
K40E271	175	225	340			270(243~297)	455	
K40E471	300	385	505			471(423~517)	775	
K40E681	420	560	560			680(612~748)	1,120	
K40E821	510	670	680			820(738~902)	1,355	
K40E102	625	825	780			1,000(900~1,100)	1,650	
K40E152	900	1,220	900			1,500(1,350~1,650)	2,475	
K40E182	1,000	1,465	1,080			1,800(1,620~1,980)	2,970	
K53E201	130	170	330	1.6	70,000	200(185~225)	340	70kA
K53E271	175	225	430			270(243~297)	455	
K53E471	300	385	640			470(423~517)	775	
K53E681	420	560	710			680(612~748)	1,120	
K53E821	510	670	860			820(738~902)	1,355	
K53E102	625	825	990			1,000(900~1,100)	1,650	
K53E152	900	1,220	1,140			1,500(1,350~1,650)	2,475	
K53E182	1,000	1,465	1,370			1,800(1,620~1,980)	2,970	

* 39V~68V의 최대 제한 전압은 전류 25A에서 측정된 값입니다. (Maximum clamping voltage from 39V to 68V is tested with current 25A.)
※ DC 전용의 단상형은 단상 전원 접지형(태양열)으로만 주문 가능합니다. (DC is applicable for Single phase+E only.)

써지 보호 장치 SPD

단상 찬넬형 / Single phase channel type

Parts No.	Maximum continuous operating voltage		Energy	Rated Wattage	Withstanding Surge Current	Nominal voltage at 1mA(DC) current	Maximum Clamping voltage (8/20μs)	kA
	AC(rms)(V)	DC(V)	10/1,000μs(V)	(w)	8/20μs 1Time(A)	(V)	V_{100A}(V)	
KCL15E471	300	385	148	0.6	6,000	470(423~517)	775	6kA
KCL20E471	300	385	247	1.0	10,000	470(423~517)	775	10kA
KCL20E821	510	670	344			820(738~902)	1,355	
KCL20E102	625	825	420			1,000(900~1,100)	1,650	
KCL25E471	300	385	315	1.0	15,000	470(423~517)	775	15kA
KCL25E821	510	670	420			820(738~902)	1,355	
KCL25E102	625	825	525			1,000(900~1,100)	1,650	
KCL32E471	300	385	567	1.2	20,000	470(423~517)	775	20kA
KCL32E821	510	670	763			820(738~902)	1,355	
KCL32E102	625	825	868			1,000(900~1,100)	1,650	
KCL40E471	300	385	707	1.4	40,000	470(423~517)	775	40kA
KCL40E821	510	670	952			820(738~902)	1,355	
KCL40E102	625	825	1,092			1,000(900~1,100)	1,650	

※ DC 전용의 단상형은 단상 전원 접지형(태양열)으로만 주문 가능합니다. (DC is applicable for Single phase+E only.)

단상 전원 접지형 / Single phase + E type

Parts No.	Withstanding Surge Current (8/20μs)	Rated system voltage	Maximum continuous operating voltage	Voltage protection level
	1Time(A)	[1]Uo	[2]Uc	[3]Up
KC10-120V2Y	10kA	1P 120V 2W	175V	2.5kV
KC10-220V2Y	10kA	1P 220V 2W	300V	
KC10-380V2Y	10kA	1P 380V 2W	510V	
KC10-440V2Y	10kA	1P 440V 2W	625V	
KC15-120V2Y	15kA	1P 120V 2W	175V	
KC15-220V2Y	15kA	1P 220V 2W	300V	
KC15-380V2Y	15kA	1P 380V 2W	510V	
KC15-440V2Y	15kA	1P 440V 2W	625V	
K20-120V2Y	20kA	1P 120V 2W	175V	
K20-220V2Y	20kA	1P 220V 2W	300V	
K20-380V2Y	20kA	1P 380V 2W	510V	
K20-440V2Y	20kA	1P 440V 2W	625V	
K40-120V2Y	40kA	1P 120V 2W	175V	
K40-220V2Y	40kA	1P 220V 2W	300V	
K40-380V2Y	40kA	1P 380V 2W	510V	
K40-440V2Y	40kA	1P 440V 2W	625V	
K70-120V2Y	70kA	1P 120V 2W	175V	
K70-220V2Y	70kA	1P 220V 2W	300V	
K70-380V2Y	70kA	1P 380V 2W	510V	
K70-440V2Y	70kA	1P 440V 2W	550V	
K80-120V2Y	80kA	1P 120V 2W	175V	
K80-220V2Y	80kA	1P 220V 2W	300V	
K80-380V2Y	80kA	1P 380V 2W	510V	
K80-440V2Y	80kA	1P 440V 2W	550V	
KL10-120V2Y	10kA	1P 120V 2W	175V	
KL10-220V2Y	10kA	1P 220V 2W	300V	
KL10-380V2Y	10kA	1P 380V 2W	510V	
KL10-440V2Y	10kA	1P 440V 2W	625V	
KL15-120V2Y	15kA	1P 120V 2W	175V	
KL15-220V2Y	15kA	1P 220V 2W	300V	
KL15-380V2Y	15kA	1P 380V 2W	510V	
KL15-440V2Y	15kA	1P 440V 2W	625V	
KEB10-220V2Y	10kA	1P 220V 2W	300V	
KEB10-380V2Y	10kA	1P 380V 2W	510V	
KEB10-440V2Y	10kA	1P 440V 2W	625V	
KES10-220V2Y	10kA	1P 220V 2W	300V	
KES10-380V2Y	10kA	1P 380V 2W	510V	
KES10-440V2Y	10kA	1P 440V 2W	625V	

*440V의 제품은 주문 사양입니다. (440V products is on demand.)

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써지 보호 장치 SPD

Parts No.	Withstanding Surge Current (8/20μs)	Rated system voltage	Maximum continuous operating voltage	Voltage protection level
	1Time(A)	[1]Uo	[2]Uc	[3]Up
KBL20-220V2Y	20kA	1P 220V 2W	300V	2.5kV
KBL20-380V2Y	20kA	1P 380V 2W	510V	
KBL20-440V2Y	20kA	1P 440V 2W	625V	
KBL40-220V2Y	40kA	1P 220V 2W	300V	
KBL40-380V2Y	40kA	1P 380V 2W	510V	
KBL40-440V2Y	40kA	1P 440V 2W	550V	
KBL70-220V2Y	70kA	1P 220V 2W	300V	
KBL70-380V2Y	70kA	1P 380V 2W	510V	
KBL70-440V2Y	70kA	1P 440V 2W	550V	
KBL80-220V2Y	80kA	1P 220V 2W	300V	
KBL80-380V2Y	80kA	1P 380V 2W	510V	
KBL80-440V2Y	80kA	1P 440V 2W	550V	

삼상 전원 접지형 / Three phase + E type

Parts No.	Withstanding Surge Current (8/20μs)	Rated system voltage	Maximum continuous operating voltage	Voltage protection level
	1Time(A)	[1]Uo	[2]Uc	[3]Up
KC10-220V3Y	10kA	3P 220V 3W	300V	2.5kV
KC10-380V3Y	10kA	3P 380V 3W	510V	
KC10-440V3Y	10kA	3P 440V 3W	625V	
KC15-220V3Y	15kA	3P 220V 3W	300V	
KC15-380V3Y	15kA	3P 380V 3W	510V	
KC15-440V3Y	15kA	3P 440V 3W	625V	
K20-220V3Y	20kA	3P 220V 3W	300V	
K20-380V3Y	20kA	3P 380V 3W	510V	
K20-440V3Y	20kA	3P 440V 3W	625V	
K40-220V3Y	40kA	3P 220V 3W	300V	
K40-380V3Y	40kA	3P 380V 3W	510V	
K40-440V3Y	40kA	3P 440V 3W	625V	
K70-220V3Y	70kA	3P 220V 3W	300V	
K70-380V3Y	70kA	3P 380V 3W	510V	
K70-440V3Y	70kA	3P 440V 3W	550V	
K80-220V3Y	80kA	3P 220V 3W	300V	
K80-380V3Y	80kA	3P 380V 3W	510V	
K80-440V3Y	80kA	3P 440V 3W	550V	
K120-220V3Y	120kA	3P 220V 3W	300V	
K120-380V3Y	120kA	3P 380V 3W	510V	
K120-440V3Y	120kA	3P 440V 3W	550V	
K160-220V3Y	160kA	3P 220V 3W	300V	
K160-380V3Y	160kA	3P 380V 3W	510V	
K160-440V3Y	160kA	3P 440V 3W	550V	
KBL40-220V3Y	40kA	3P 220V 3W	300V	
KBL40-380V3Y	40kA	3P 380V 3W	510V	
KBL40-440V3Y	40kA	3P 440V 3W	550V	
KBL70-220V3Y	70kA	3P 220V 3W	300V	
KBL70-380V3Y	70kA	3P 380V 3W	510V	
KBL70-440V3Y	70kA	3P 440V 3W	550V	
KBL80-220V3Y	80kA	3P 220V 3W	300V	
KBL80-380V3Y	80kA	3P 380V 3W	510V	
KBL80-440V3Y	80kA	3P 440V 3W	550V	
KBL120-220V3Y	120kA	3P 220V 3W	300V	
KBL120-380V3Y	120kA	3P 380V 3W	510V	
KBL120-440V3Y	120kA	3P 440V 3W	550V	
KBL160-220V3Y	160kA	3P 220V 3W	300V	
KBL160-380V3Y	160kA	3P 380V 3W	510V	
KBL160-440V3Y	160kA	3P 440V 3W	550V	

*440V의 제품은 주문 사양입니다. (440V products is on demand.)

써지 보호 장치 SPD

삼상 전원 N 접지형 / Three phase + N + E type

Parts No.	Withstanding Surge Current (8/20μs) 1Time(A)	[1]Uo	[2]Uc	[3]Up
K10-380V4Y	10kA	3P 380V 4W	510V	2.5kV
K15-380V4Y	15kA	3P 380V 4W	510V	
K20-380V4Y	20kA	3P 380V 4W	510V	
K40-380V4Y	40kA	3P 380V 4W	510V	
K70-380V4Y	70kA	3P 380V 4W	320V	
K80-380V4Y	80kA	3P 380V 4W	320V	
K120-380V4Y	120kA	3P 380V 4W	320V	
K160-380V4Y	160kA	3P 380V 4W	320V	
KBL40-380V4Y	40kA	3P 380V 4W	320V	
KBL70-380V4Y	70kA	3P 380V 4W	320V	
KBL80-380V4Y	80kA	3P 380V 4W	320V	
KBL120-380V4Y	120kA	3P 380V 4W	320V	
KBL160-380V4Y	160kA	3P 380V 4W	320V	
KSP20-380V4Y	20kA	3P 380V 4W	385V	1.5kV
KSP40-380V4Y	40kA	3P 380V 4W	385V	2.0kV
KSP100-380V4Y	100kA	3P 380V 4W	385V	3.2kV

[1]Uo : 공칭교류전압 [2]Uc : 최대연속전압 [3]Up : 전압보호레벨
[1]Uo : Rated system [2]Uc : Maximum continuous operating voltage [3]Up : Voltage protection level

K, KBL, KSP 공통사양 (K, KBL, KSP Common specifications)

K Type



KBL Type



KSP Type



Operation Environment	Operating frequency	Mounting method	Operating LED lamp
-40 ~ + 75 °C	50/60 Hz	M4 Screw x 4	정상 동작 : 녹색 LED 점등 Normal operating : Green LED lights up
			비정상 / 사고 후 : 녹색 LED 소등 Abnormal / accident after : Green LED lights off

써지 보호 장치 SPD

단상형 SINGLE PHASE TYPE

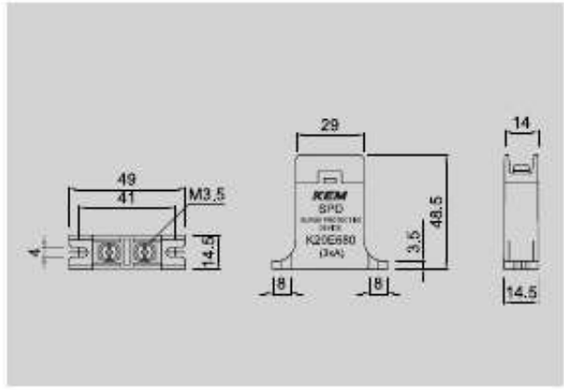
3kA

K20E
- 390
- 560
- 680

10kA

K20E
- 271
- 471
- 681
- 820
- 821
- 102
- 152
- 182





15kA

K25E
- 271
- 471
- 681
- 821

K25E
- 102
- 152
- 182

20kA

K32E
- 201
- 271
- 471
- 681

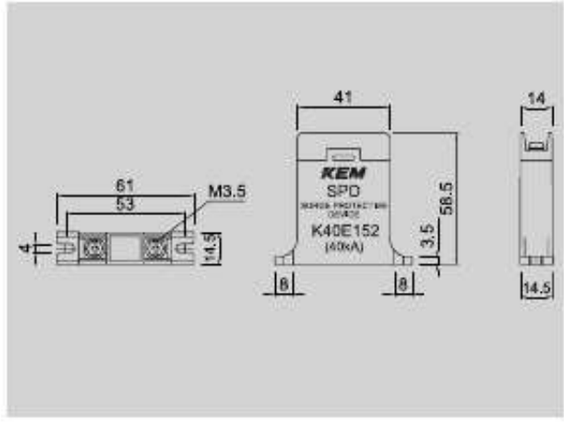
K32E
- 821
- 102
- 152
- 182

40kA

K40E
- 201
- 271
- 471
- 681

K40E
- 821
- 102
- 152
- 182





50kA

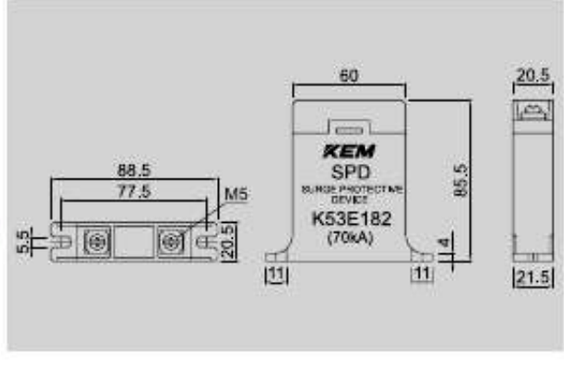
60kA

70kA

K53E
- 201
- 271
- 471
- 681

K53E
- 821
- 102
- 152
- 182





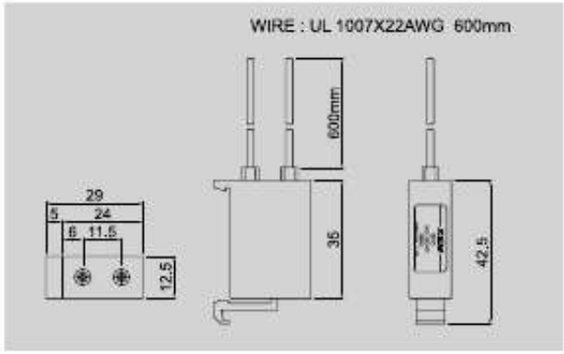
11_SPD.indd 124 2020/07/27 13:24:12

단상 찬넬형 SINGLE PHASE CHANNEL TYPE

6kA

KCL15E 471

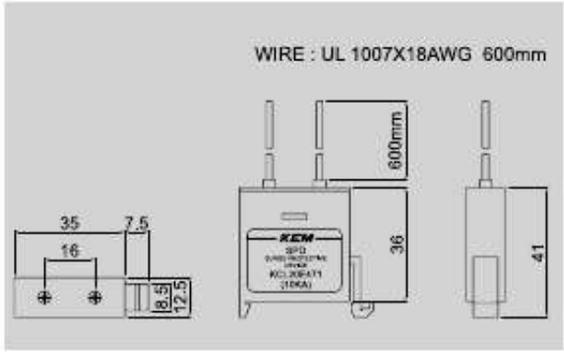




10kA

KCL20E 471 / 821 / 102

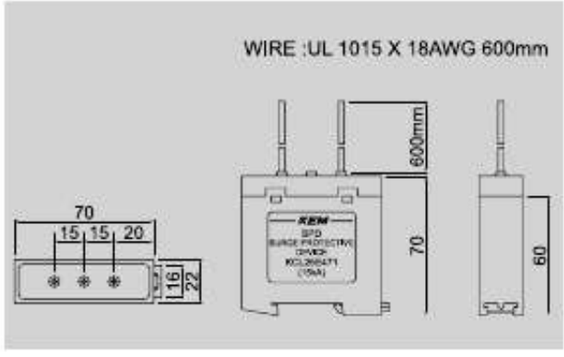




15kA

KCL25E 471 / 821 / 102





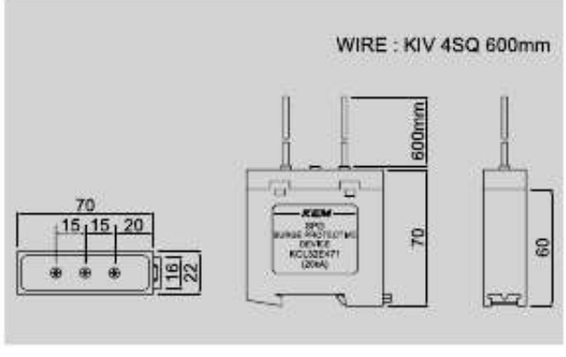
20kA

KCL32E 471 / 821 / 102

40kA

KCL40E 471 / 821 / 102





써지 보호 장치 SPD

단상 전원 접지형 SINGLE PHASE+E

※ DC 전용의 단상 전원 접지형은 별도 주문 제작입니다.

10kA

KC10 [120V, 220V, 380V, 440V] 2Y

15kA

KC15 [120V, 220V, 380V, 440V] 2Y

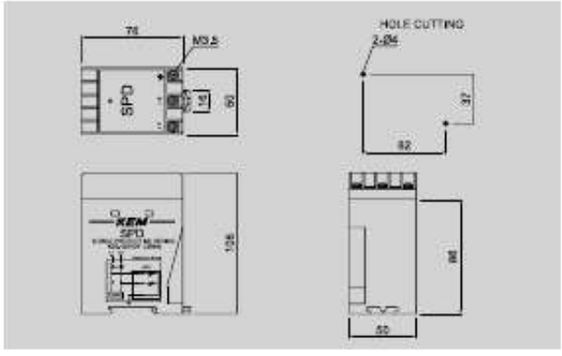




20kA

K20 [120V, 220V, 380V, 440V] 2Y

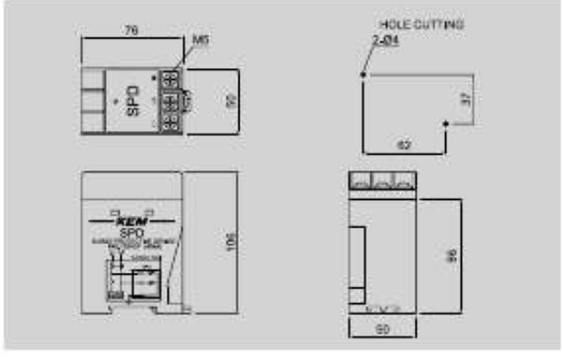




40kA

K40 [120V, 220V, 380V, 440V] 2Y





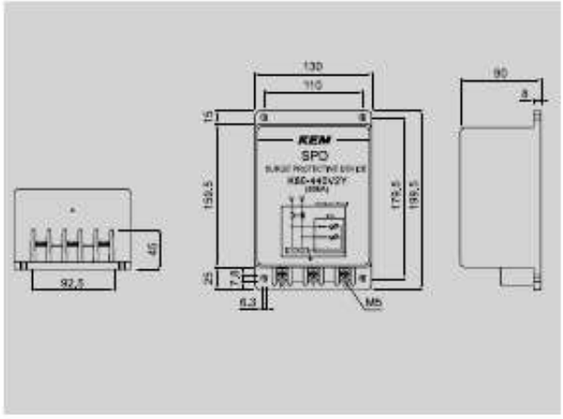
50kA
60kA
70kA

K70 [120V, 220V, 380V, 440V] 2Y

80kA

K80 [120V, 220V, 380V, 440V] 2Y





써지 보호 장치 SPD

단상 전원 접지형 SINGLE PHASE+E

※ DC 전용의 단상 전원 접지형은 별도 주문 제작입니다.

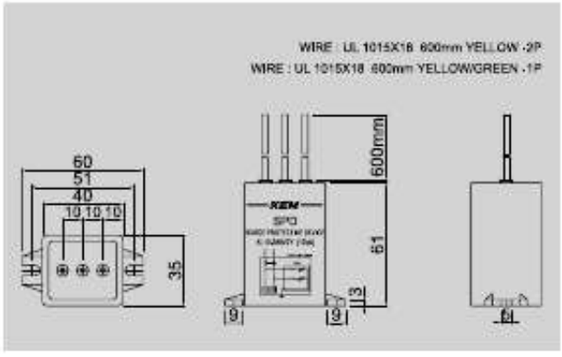
10kA

KL10 [120V, 220V, 380V, 440V] 2Y

15kA

KL15 [120V, 220V, 380V, 440V] 2Y





20kA **40kA**

KBL20 [220V, 380V, 440V] 2Y

KBL40 [220V, 380V, 440V] 2Y

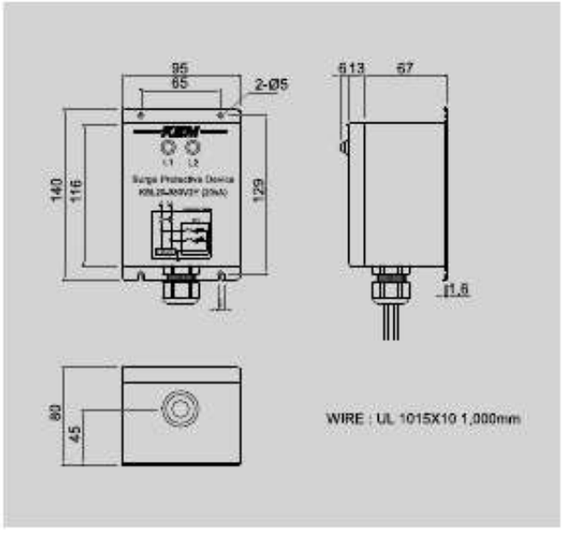
70kA

KBL70 [220V, 380V, 440V] 2Y

80kA

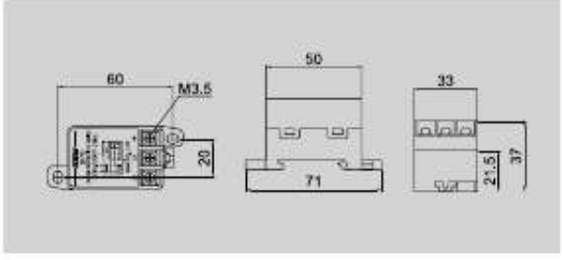
KB L80 [220V, 380V, 440V] 2Y





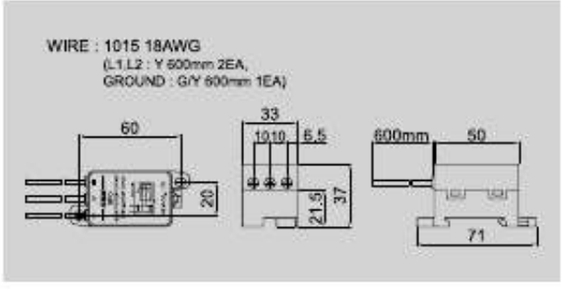
KES10 [120V, 220V, 380V, 440V] 2Y





KEB10 [120V, 220V, 380V, 440V] 2Y





써지 보호 장치 SPD

삼상 전원 접지형 THREE PHASE+E

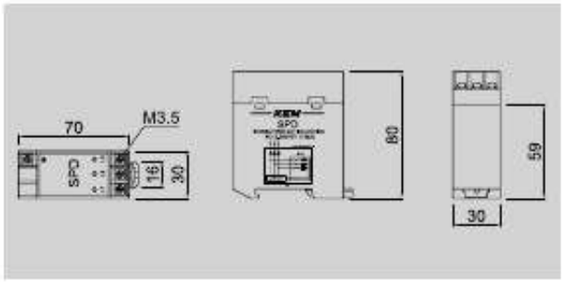
10kA

KC10 [220V / 380V / 440V] 3Y

15kA

KC15 [220V / 380V / 440V] 3Y

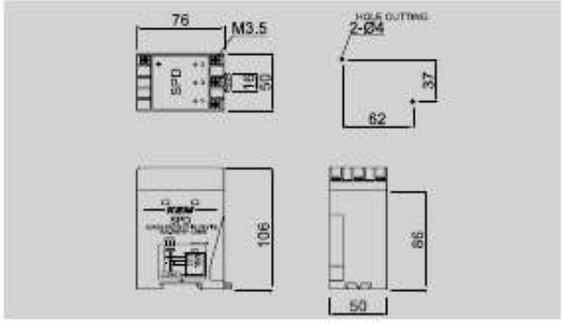




20kA

K20 [220V / 380V / 440V] 3Y

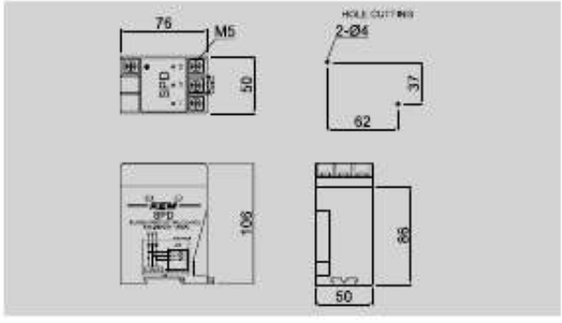




40kA

K40 [220V / 380V / 440V] 3Y





50kA 60kA 70kA

K70 [220V / 380V / 440V] 3Y

80kA

K80 [220V / 380V / 440V] 3Y

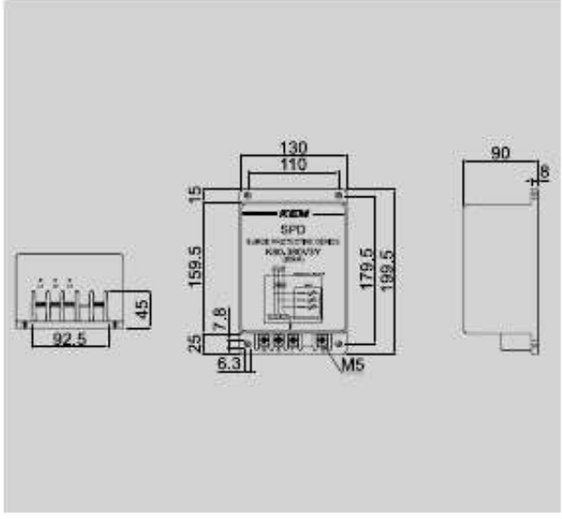
120kA

K120 [220V / 380V / 440V] 3Y

160kA

K160 [220V / 380V / 440V] 3Y





써지 보호 장치 SPD

삼상 전원 접지형 THREE PHASE+ E

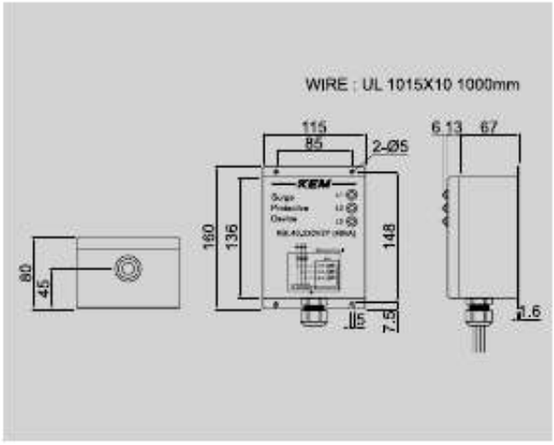
40kA

KBL40 [220V / 380V / 440V] 3Y

70kA

KBL70 [220V / 380V / 440V] 3Y

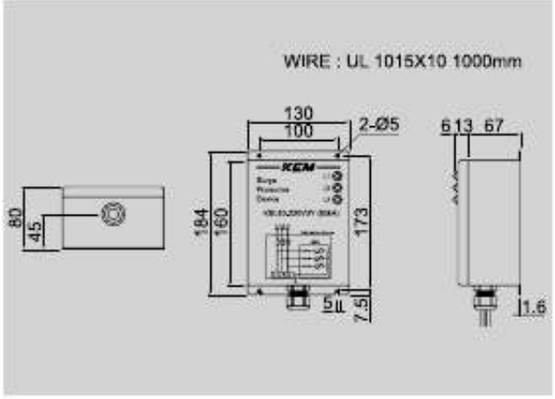




80kA

KBL80 [220V / 380V / 440V] 3Y





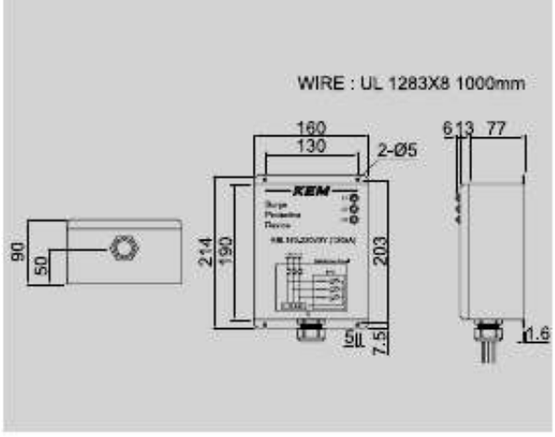
120kA

KBL120 [220V / 380V / 440V] 3Y

160kA

KBL160 [220V / 380V / 440V] 3Y





써지 보호 장치 SPD

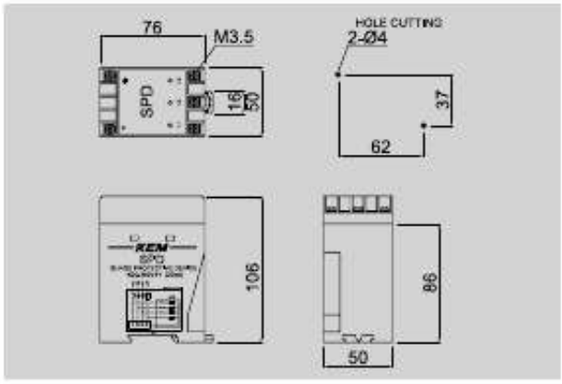
삼상 전원 N 접지형 THREE PHASE+N+E

10kA
K10-380V4Y

15kA
K15-380V4Y

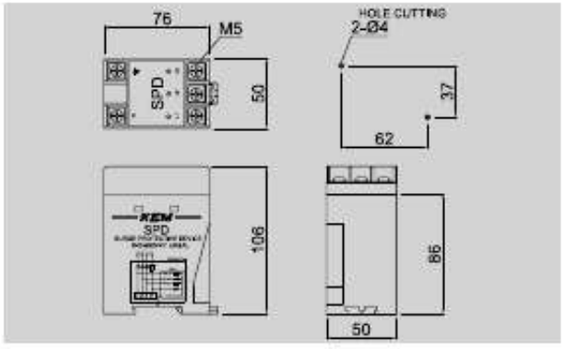
20kA
K20-380V4Y





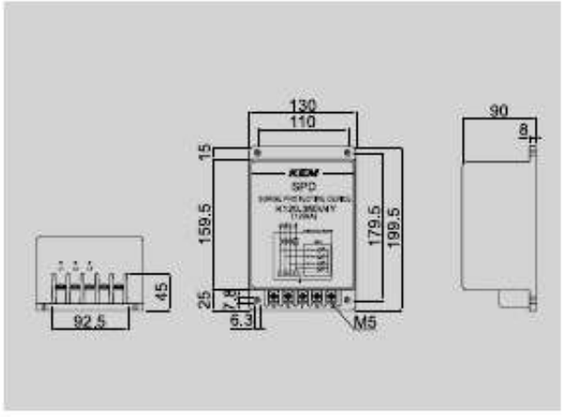
40kA
K40-380V4Y





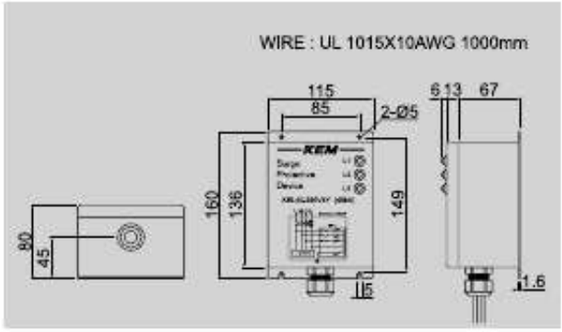
50kA
K50-380V4Y
60kA
K60-380V4Y
70kA
K70-380V4Y
80kA
K80-380V4Y
120kA
K120-380V4Y
160kA
K160-380V4Y





40kA
KBL40-380V4Y
50kA
KBL50-380V4Y
60kA
KBL60-380V4Y
70kA
KBL70-380V4Y



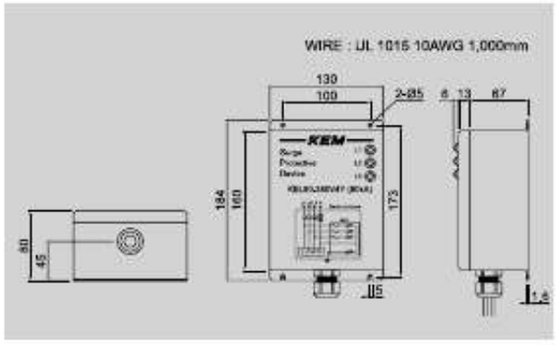


써지 보호 장치 SPD

삼상 전원 N 접지형 THREE PHASE+NE

80kA
KBL80-380V4Y

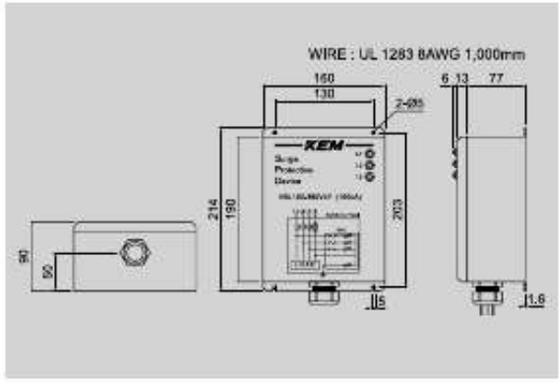




120kA
KBL120-380V4Y

160kA
KBL160-380V4Y



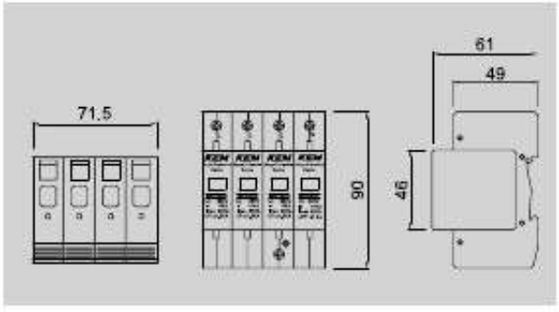


찬넬 타입 / Channel type

20kA
KSP20-380V4Y

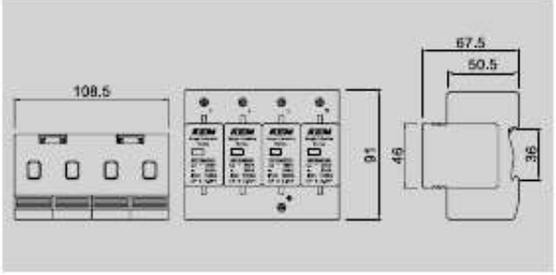
40kA
KSP40-380V4Y





100kA
KSP100-380V4Y





써지 보호 장치 SPD

삼상 전원 N 접지형 THREE PHASE + N + E

안전 커버 타입 / Safety cover type

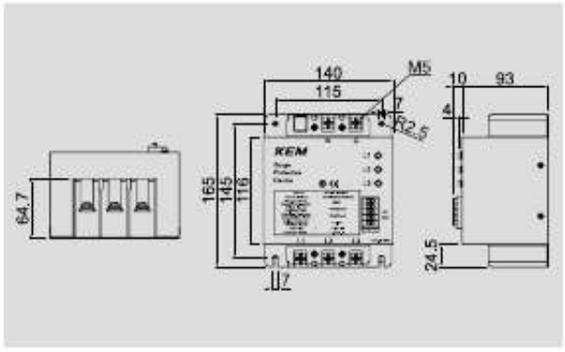
40kA

KB3-40 [220V / 380V / 480V] 4YF

80kA

KB3-80 [220V / 380V / 480V] 4YF





어레스터형 ARRESTER TYPE

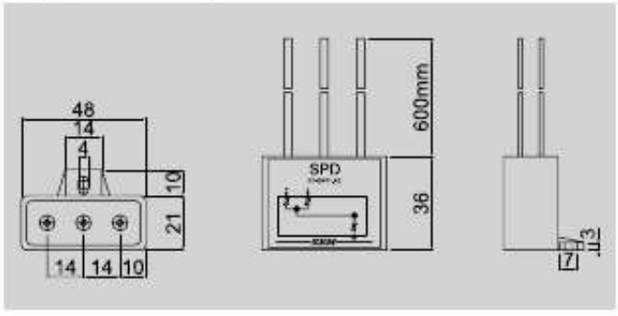
■ 정격 전압 / Rated voltage

Arrester type	Nominal voltage at 1mA(DC) current	Max allowable voltage		Max energy (10/1000μs)	Max peak current (8/20μs)	Arrester voltage	Phase
	(V)	AC(V)	DC(V)	(Joule)	1Time(kA)		
K14D471-A3	470 (423~517)	300	385	247	6	350V	Single phase+E
K14D821-A6	820 (738~902)	510	670	344	6	600V	Three phase+E

K14D471-A3



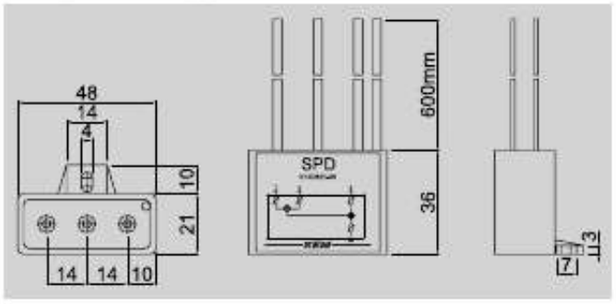
Single phase + Earth type



K14D821-A6



Three phase + Earth type



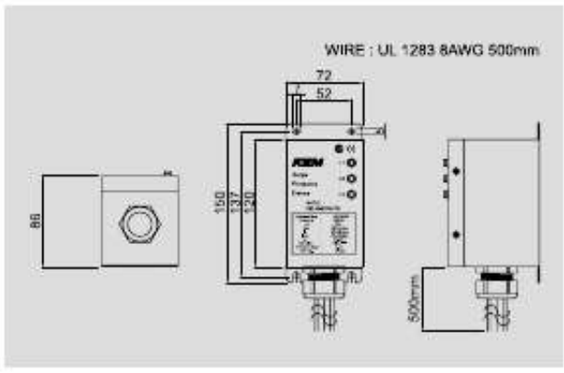
써지 보호 장치

SPD NEW

20kA

KBL20
- 220V: 2YN, 3YN, 4YN
- 380V: 2YN, 3YN, 4YN
- 480V: 2YN, 3YN, 4YN

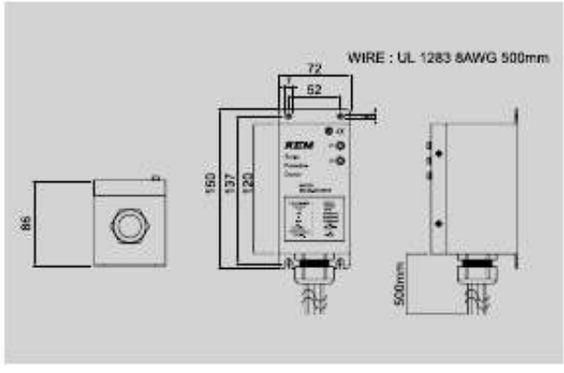




40kA

KBL40
- 220V: 2YN, 3YN, 4YN
- 380V: 2YN, 3YN, 4YN
- 480V: 2YN, 3YN, 4YN

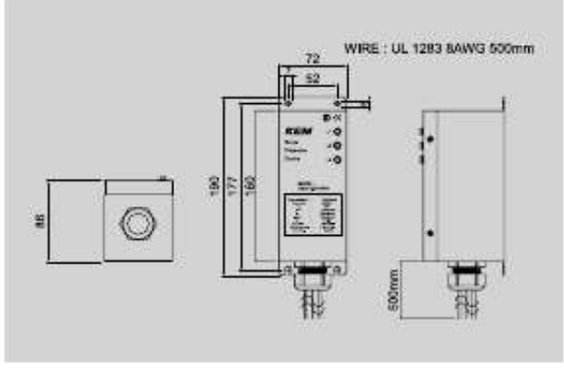




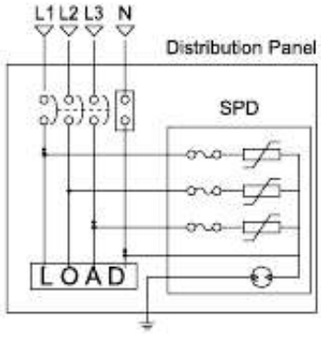
80kA

KBL80
- 220V: 2YN, 3YN, 4YN
- 380V: 2YN, 3YN, 4YN
- 480V: 2YN, 3YN, 4YN





회로도 / Curcuit 삼상전원N접지형 / Three phase+N+E)



11_SPD.indd 133

써지 보호 장치 SPD

사 양 / Specification

단상 전원 접지형 / Single phase + E type

• CLASS 2

Parts No.	[1]In (8/20μs)	[2]Imax (8/20μs)	Nominal voltage	[3]Uc	[4]Up	Back-up fuse & CB	Case Size	Protection mode
KB2-40-220-2YF	20kA(Mode)	40kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A	A	L - G
KB2-40-380-2YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-40-480-2YF			440 ~ 480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB2-80-220-2YF	40kA(Mode)	80kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A		
KB2-80-380-2YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-80-480-2YF			440 ~ 480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB2-120-220-2YF	60kA(Mode)	120kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB2-120-380-2YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-120-480-2YF			440 ~ 480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB2-160-220-2YF	80kA(Mode)	160kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A	B	
KB2-160-380-2YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-160-480-2YF			440 ~ 480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB2-200-220-2YF	100kA(Mode)	200kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB2-200-380-2YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-200-480-2YF			440 ~ 480VAC(50/60Hz)	550V	< 2.5kV	50~100A		

[1]In : 방전전류(8/20μs) [2]Imax : 최대방전전류(8/20μs) [3]Uc : 최대연속전압 [4]Up : 전압보호레벨
[1]In : Nominal discharge current(8/20μs) [2]Imax : Maximum discharge current(8/20μs)
[3]Uc : Maximum continuous operating voltage [4]Up : Voltage protection level

삼상 전원 접지형 / Three phase + E type

• CLASS 2

Parts No.	In (8/20μs)	Imax (8/20μs)	Nominal voltage	Uc	Up	Back-up fuse & CB	Case size	Protection mode
KB2-40-220-3YF	20kA(Mode)	40kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A	A	L - G
KB2-40-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-40-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB2-80-220-3YF	40kA(Mode)	80kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A		
KB2-80-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-80-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB2-120-220-3YF	60kA(Mode)	120kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB2-120-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-120-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB2-160-220-3YF	80kA(Mode)	160kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A	B	
KB2-160-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-160-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB2-200-220-3YF	100kA(Mode)	200kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB2-200-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-200-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		

• CLASS 3

Parts No.	Uoc (1.2/50μs)	Imax (8/20μs)	Nominal voltage	Uc	Up	Back-up fuse & CB	Case size	Protection mode
KB3-40-220-3YF	20kV(Mode)	40kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A	A	L - G
KB3-40-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB3-40-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB3-80-220-3YF		80kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	30~50A		
KB3-80-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	30A		
KB3-80-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	30A		
KB3-120-220-3YF		120kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB3-120-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB3-120-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB3-160-220-3YF		160kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A	B	
KB3-160-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB3-160-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		
KB3-200-220-3YF		200kA(Mode)	220~240VAC(50/60Hz)	300V	< 1.5kV	60~150A		
KB3-200-380-3YF			380VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB3-200-480-3YF			440~480VAC(50/60Hz)	550V	< 2.5kV	50~100A		

In : 방전전류(8/20μs) Uoc : 방전전압(1.2/50μs) Imax : 최대방전전류(8/20μs) Uc : 최대연속전압 Up : 전압보호레벨

In : Nominal discharge current(8/20μs) Uoc : Discharge voltage(1.2/50μs)
Imax : Maximum discharge current(8/20μs) Uc : Maximum continuous operating voltage Up : Voltage protection level

써지 보호 장치 SPD

삼상 전원 N 접지형 / Three phase + N + E type

• CLASS 2

Parts No.	[2]In (8/20μs)	[4]Imax (8/20μs)	Nominal voltage	[1]Uc	[6]Up	Back-up fuse & CB	Case size	Protection mode
KB2-40-220-4YF	20kA (Mode)	40kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	30~50A	A	L - N, N - G
KB2-40-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	30A		
KB2-40-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-80-220-4YF	40kA (Mode)	80kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	30~50A		
KB2-80-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	30A		
KB2-80-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	30A		
KB2-120-220-4YF	60kA (Mode)	120kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A		
KB2-120-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB2-120-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-160-220-4YF	80kA (Mode)	160kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A	B	
KB2-160-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB2-160-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB2-200-220-4YF	100kA (Mode)	200kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A		
KB2-200-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB2-200-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		

• CLASS 3

Parts No.	[3]Uoc (1.2/50μs)	[4]Imax (8/20μs)	Nominal voltage	[1]Uc	[6]Up	Back-up fuse & CB	Case size	Protection mode
KB3-40-220-4YF	20kV (Mode)	40kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	30~50A	A	L - N, N - G
KB3-40-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	30A		
KB3-40-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	30A		
KB3-80-220-4YF		80kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	30~50A		
KB3-80-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	30A		
KB3-80-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	30A		
KB3-120-220-4YF		120kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A		
KB3-120-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB3-120-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB3-160-220-4YF		160kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A	B	
KB3-160-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB3-160-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		
KB3-200-220-4YF		200kA (Mode)	120/208VAC(50/60Hz)	150V	< 1.5kV	60~150A		
KB3-200-380-4YF			220/380VAC(50/60Hz)	320V	< 2.0kV	50~100A		
KB3-200-480-4YF			240/415VAC~277/480VAC(50/60Hz)	350V	< 2.0kV	50~100A		

[2]In : 방전전류(8/20μs) [3]Uoc : 방전전압(1.2/50μs) [4]Imax : 최대방전전류(8/20μs) [1]Uc : 최대연속전압 [6]Up : 전압보호레벨
[2]In : Nominal discharge current(8/20μs) [3]Uoc : Discharge voltage(1.2/50μs)
[4]Imax : Maximum discharge current(8/20μs) [1]Uc : Maximum continuous operating voltage [6]Up : Voltage protection level

KB type 공통 사양 / KB type specification

	Cable		외함 사이즈 / Case size (Width X Height X Depth)	케이블 길이 / Cable length	외함 및 취부방법 / Mounting method	표시장치 / Indicator
	Power	PE				
CLASS 2	6/10sq	6/10sq	A type - 140mm X 165mm X 93mm B type - 150mm X 225mm X 93mm	500mm 이내 (Less than 500mm)	Steel case / M4 나사 체결방식 (M4 Screw wall mounting)	정상 : 녹색 LED 점등 (Normal : Green lights on)
CLASS 3	6sq	6sq				

기압 / Atmosphere	고도 / Altitude	사용온도 및 습도 / Operating temperature	알람 기능 / Alarm function
80 ~ 106kPa	+2,000 ~ -500m	-40~80°C, 5~95% (결로 없음) (Non-condensing)	Dry Contact(NC,COM)

써지 보호 장치 SPD

단상 전원 접지형 / Single phase + E type

Parts No.	[1]In (8/20μs)	[2]Imax (8/20μs)	Nominal voltage	[3]Uc	[4]Up	Back-up fuse & CB	Case Size	Protection mode
KBL20-220-2YN	10kA(Mode)	20kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV	30A	A	L - G
KBL20-380-2YN			380VAC(50/60Hz)	350V				
KBL20-480-2YN			480VAC(50/60Hz)	550V	< 3.0kV			
KBL40-220-2YN	20kA(Mode)	40kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV			
KBL40-380-2YN			380VAC(50/60Hz)	350V				
KBL40-480-2YN			480VAC(50/60Hz)	550V	< 3.0kV			
KBL80-220-2YN	40kA(Mode)	20kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV	50A	B	
KBL80-380-2YN			380VAC(50/60Hz)	350V				
KBL80-480-2YN			480VAC(50/60Hz)	550V	< 3.0kV			

삼상 전원 접지형 / Three phase + E type

Parts No.	[1]In (8/20μs)	[2]Imax (8/20μs)	Nominal voltage	[3]Uc	[4]Up	Back-up fuse & CB	Case Size	Protection mode
KBL20-220-3YN	10kA(Mode)	20kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV	30A	A	L - G
KBL20-380-3YN			380VAC(50/60Hz)	350V				
KBL20-480-3YN			480VAC(50/60Hz)	550V	< 3.0kV			
KBL40-220-3YN	20kA(Mode)	40kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV			
KBL40-380-3YN			380VAC(50/60Hz)	350V				
KBL40-480-3YN			480VAC(50/60Hz)	550V	< 3.0kV			
KBL80-220-3YN	40kA(Mode)	80kA(Mode)	220VAC(50/60Hz)	300V	< 2.0kV	50A	B	
KBL80-380-3YN			380VAC(50/60Hz)	350V				
KBL80-480-3YN			480VAC(50/60Hz)	550V	< 3.0kV			

삼상 전원 N 접지형 / Three phase + N + E type

Parts No.	[1]In (8/20μs)	[2]Imax (8/20μs)	Nominal voltage	[3]Uc	[4]Up	Back-up fuse & CB	Case Size	Protection mode
KBL20-220V4YN	10kA(Mode)	20kA(Mode)	120/208VAC(50/60Hz)	150V	< 2.0kV	30A	A	L - N N - G
KBL20-380V4YN			220/380VAC(50/60Hz)	320V				
KBL20-480V4YN			277/480VAC(50/60Hz)	350V				
KBL40-220V4YN	20kA(Mode)	40kA(Mode)	120/208VAC(50/60Hz)	150V				
KBL40-380V4YN			220/380VAC(50/60Hz)	320V				
KBL40-480V4YN			277/480VAC(50/60Hz)	350V				
KBL80-220V4YN	40kA(Mode)	80kA(Mode)	120/208VAC(50/60Hz)	150V		30A	B	
KBL80-380V4YN			220/380VAC(50/60Hz)	320V				
KBL80-480V4YN			277/480VAC(50/60Hz)	350V				

[1]In : 방전전류(8/20μs) [2]Imax : 최대방전전류(8/20μs) [3]Uc : 최대연속전압 [4]Up : 전압보호레벨
[1]In : Nominal discharge current(8/20μs) [2]Imax : Maximum discharge current(8/20μs)
[3]Uc : Maximum continuous operating voltage [4]Up : Voltage protection level

KBL type 공통 사양 / KBL type specification

Cable		외함 사이즈 / Case size (Width X Height X Depth)	케이블 길이 / Cable length	외함 및 취부방법 / Mounting method	표시장치 / Indicator
Power	PE				
UL1283	8AWG	A type - 72mm X 150mm X 86mm B type - 72mm X 190mm X 86mm	500mm 이내 (Less than 500mm)	Steel case / M4 나사 체결방식 (M4 Screw wall mounting)	정상 : 녹색 LED 점등 (Normal : Green lights on)

기압 / Atmosphere	고도 / Altitude	사용온도 및 습도 / Operating temperature
80 ~ 106kPa	+2,000 ~ -500m	-40~80°C, 5~95% (결로 없음) (Non-condensing)

써지 킬러 - MC, 릴레이용

특 징

1. 응답성이 뛰어나며 급격한 고주파성 펄스 전압도 흡수 가능합니다.
2. 제한전압 특성이 우수합니다.
3. 써지 흡수 능력이 큽니다.
4. 전압, 전류 특성이 대칭으로 되어 있을 뿐 아니라 + 극 또는 - 극성 써지를 같은 성능으로 흡수합니다.
5. 정격 전력이 크고 신뢰성이 높습니다.

용 도

1. 각종 반도체 (다이오드, 사이리스터, 트랜지스터, IC 등)의 써지 과전압으로부터 보호
2. 인버터 사용 회로에 써지 트러블 시 안정적으로 보호
3. 각종 계측기, 제어기기, 통신, 방송 기기 등의 유도전파에 의한 써지를 보호
4. 가전제품, 음향기기 등의 유도 전파에 의한 개폐 써지를 보호
5. 반도체 제조 및 관련 장비
6. 조선, 자동차, 철도·지하철 설비, 원자력 장비, 항공·공항 장비, 의료장비, 소방 경보기, 자동화 라인, 방위 산업 등의 전원 분전함 보호.

SURGE KILLER - MC, relay type

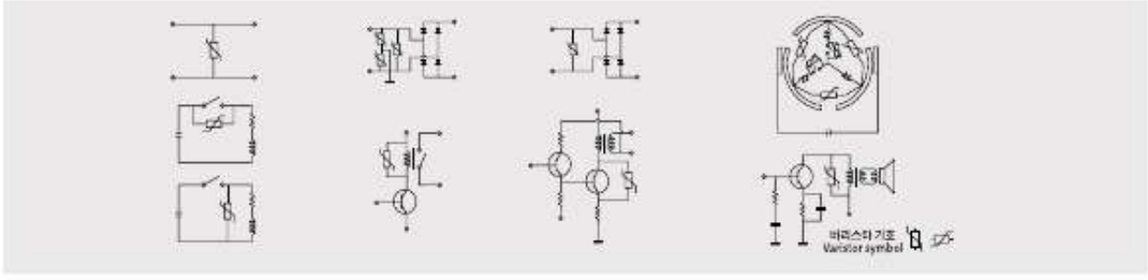
Characteristics

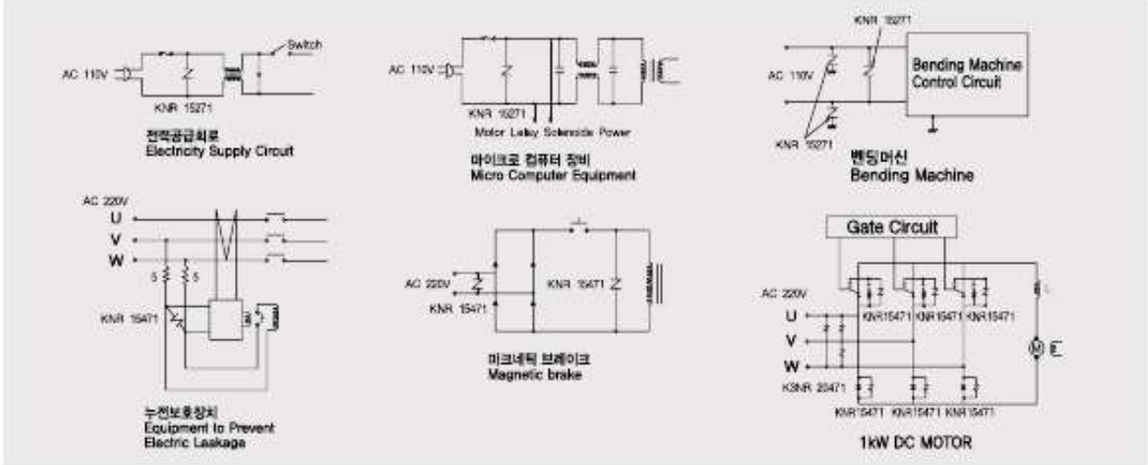
1. It's responses are wonderful and it can absorb even the abrupt pulse voltage.
2. It's features concerning clamping voltage are great.
3. It's surge absorption capacity is good.
4. Voltage and current features place in symmetrical forms. In addition, it can absorb the + or - polarity surge as the same capacity.
5. Rated electric power is high and it's reliability is great.

Use

1. It's protective roles are played against the overvoltage of diverse semiconductors (diodes, thyristors, transistors, IC).
2. It prevents overvoltage of diverse relays and protect contact points.
3. It protects surge from inductively electric waves of various counters, controllers, and communication and broadcasting equopments.
4. Protect the opening and breaking surge by induction electric wave such as home appliance and sound device.
5. Semiconductor manufacturing equipment.
6. It protects from shipbuilding, vehicle, train·subway facilities, a nuclear powered plant, air port, aviation, medical facilities, firefighting equipment, factory automation's facilities, main distribution box of defense industry, etc.

사용 예 / Use Example





써지 킬러 - MC ·릴레이용

형 식

K□NR□□-□□

①	위 상	무	단상
		3	삼상
②	전 압	무	저전압
		H	고전압
③	형 식	무	기본 전선형
		B	볼트 취부형
		T	마그네트 코일 단자형
		M	찬넬 마그네트 일체형
		C	찬넬형
④	바리스타 크기	10	10Ø
		15	15Ø
		20	20Ø
⑤	바리스타 전압	390	39V
		560	56V
		820	82V
		121	120V
		221	220V
		271	270V
		471	470V
		821	820V
		102	1,000V
		152	1,500V
		182	1,800V

SURGE KILLER - MC, relay type

Type

K□NR□□-□□

①	Phase	None	Single phase
		3	Three phase
②	Voltage	None	Low voltage
		H	High voltage
③	Type	None	Standard wire type
		B	Detachable bolt type
		T	Magnet coil terminal type
		M	Channel internal magnet type
		C	Channel type
④	Varista size	10	10Ø
		15	15Ø
		20	20Ø
⑤	Varista Voltage	390	39V
		560	56V
		820	82V
		121	120V
		221	220V
		271	270V
		471	470V
		821	820V
		102	1,000V
		152	1,500V
		182	1,800V

사 양 / Specification

단상형 / Single phase type

Model	Nominal volage at 1mA(DC) current	Max allowable voltage		Max energy (10/1000μs)	Max peak current (8/20μs)
	(V)	AC(V)	DC(V)	(Joule)	1Time(kA)
KNR-15390	39(35~43)	25	31	12	2
KNR-15560	56(50~62)	35	45	18	2
KNR-15121	120 (108~132)	75	100	38	6
KNRS-10221	220 (198~242)	140	180	35	3.5
KNR-15271	270 (243~297)	175	225	85	6
KNR-15471	470 (423~517)	300	385	148	6
KNR-20390	39 (35~43)	25	31	20	3
KNR-20560	56 (50~62)	35	45	29	3
KNR-20121	56 (50~62)	35	45	29	3
KNR-20471	470 (423~517)	300	385	247	10
KNRD-15271	270 (243~297)	175	225	142	10
KNRD-15390	39 (35~43)	25	31	12	2
KNRD-15471	470 (423~517)	300	385	247	10
KNRD-15560	56 (50~62)	35	45	18	2
KNRD-15820	82 (74~90)	50	65	26	6
KNR-10271R	270 (243~297)	175	225	43	3.5
KNR-10471R	470 (423~517)	300	385	74	3.5

Model	Nominal voltage at 1mA(DC) current	Max allowable voltage		Max energy (10/1000μs)	Max peak current (8/20μs)
	(V)	AC(V)	DC(V)	(Joule)	1Time(kA)
KNRT-10271S	270 (243~297)	175	225	43	3.5
KNRT-10471S	470 (423~517)	300	385	74	3.5
KNRDT-10820S	82 (74~90)	50	65	26	3.5
KNRT-15390	39 (35~43)	25	31	12	2
KNRT-15560	56 (50~62)	35	45	18	2
KNRT-15121	120 (108~132)	75	100	38	6
KNRT-15271	270 (243~297)	175	225	85	6
KNRT-15471	470 (423~517)	300	385	148	6
KNRDT-15390	39 (35~43)	25	31	12	2
KNRDT-15560	56 (50~62)	35	45	18	2
KNRDT-15820	82 (74~90)	50	65	26	6
KNRDT-15271	270 (243~297)	175	225	85	6
KNRDT-15471	470 (423~517)	300	385	148	6
KNRC-15271	270 (243~297)	175	225	85	6
KNRC-15471	470 (423~517)	300	385	148	6
KNRC-20471	470 (423~517)	300	385	247	10
KNRHC-20821	820 (738~902)	510	670	344	10

써지 킬러 - MC, 릴레이용

SURGE KILLER - MC, relay type

삼상형 / Three phase type

Model	Nominal voltage at 1mA(DC) current	Max allowable voltage		Max Energy (10/1000μs)	Max peak current (8/20μs)
	(V)	AC(V)	DC(V)	(Joule)	1Time(kA)
K3NRD-15471	470 (423~517)	300	385	148	6
K3NR-20471	470 (423~517)	300	385	247	10
K3NRH-20821	820 (738~902)	510	670	344	
K3NRH-20102	1,000 (900~1,100)	625	825	420	
K3NRH-20152	1,500 (1,350~1,650)	900	1,220	629	
K3NRB-20471	470 (423~517)	300	385	247	10
K3NRB-25471	470 (423~517)	300	385	315	15
K3NRHB-25821	820 (738~902)	510	670	420	
K3NRHB-25102	1,000 (900~1,100)	625	825	525	
K3NRHB-25152	1,500 (1,350~1,650)	900	1,220	700	
K3NRC-32471	470 (423~517)	300	385	567	20
K3NRHC-32821	820 (738~902)	510	670	763	
K3NRHC-32102	1,000 (900~1,100)	625	825	868	
K3NRHC-32152	1,500 (1,350~1,650)	900	1,220	1,092	
K3NRC-40471	470 (423~517)	300	385	707	40
K3NRHC-40821	820 (738~902)	510	670	952	
K3NRHC-40102	1,000 (900~1,100)	625	825	1,092	
K3NRHC-40152	1,500 (1,350~1,650)	900	1,220	1,260	
K3NRC-53471	470 (423~517)	300	385	896	70
K3NRHC-53821	820 (738~902)	510	670	1,204	
K3NRHC-53102	1,000 (900~1,100)	625	825	1,386	
K3NRHC-53152	1,500 (1,350~1,650)	900	1,220	1,596	
K3NRTA-15471	470 (423~517)	300	385	148	6
K3NRTB-15471	470 (423~517)	300	385	148	
K3NRTC-15471	470 (423~517)	300	385	148	
K3NRTMA-15471	470 (423~517)	300	385	148	
K3NRTMB-15471	470 (423~517)	300	385	148	

삼상 찬넬형 / Three phase channel type

Model	Nominal voltage at 1mA(DC) current	Max allowable voltage		Max energy (10/1000μs)	Max peak current (8/20μs)
	(V)	AC(V)	DC(V)	(Joule)	1Time(kA)
K3NRM-20471	470 (423~517)	300	385	247	10
K3NRHM-20821	820 (738~902)	510	670	344	
K3NRHM-20102	1,000 (900~1,100)	625	825	420	
K3NRHM-20152	1,500 (1,350~1650)	900	1,220	629	
K3NRC-20471	470 (423~517)	300	385	247	10
K3NRHC-20821	820 (738~902)	510	670	344	
K3NRHC-20102	1,000 (900~1,100)	625	825	420	
K3NRHC-20152	1,500 (1,350~1,650)	900	1,220	629	

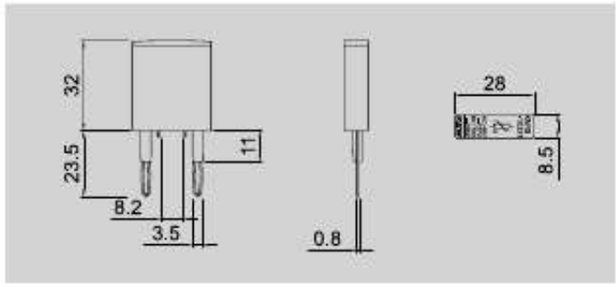
써지 킬러 - MC, 릴레이용

SURGE KILLER - MC, relay type

단상형 SINGLE PHASE TYPE

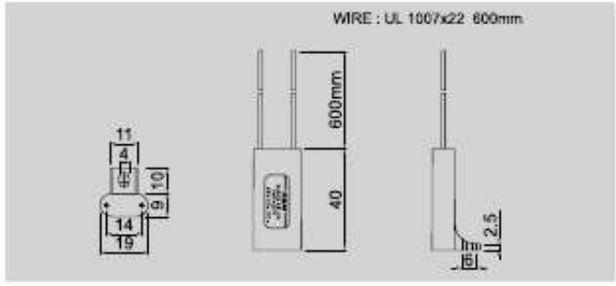
KNRS-10221





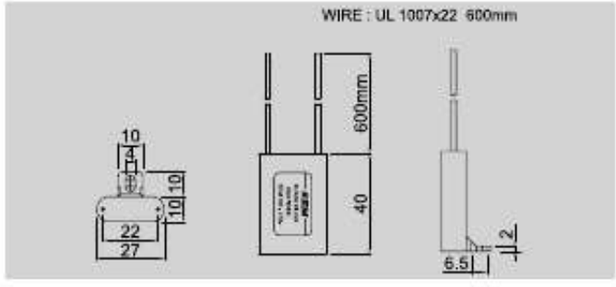
KNR 15390 / 15560 / 15121 / 15271 / 15471





KNR 20390 / 20560 / 20121 / 20271 / 20471
KNRH 20821

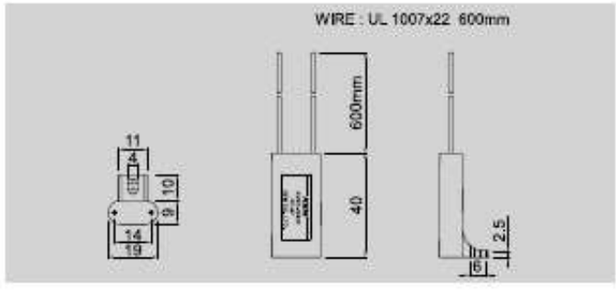




DC용 / ONLY DC

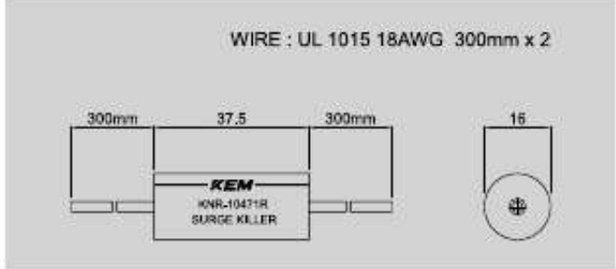
KNRD 15390 / 15560 / 15820 / 15271 / 15471





KNR 10271R / 10471R





11_SPD.indd 141

써지 킬러 - MC, 릴레이용 SURGE KILLER - MC, relay type

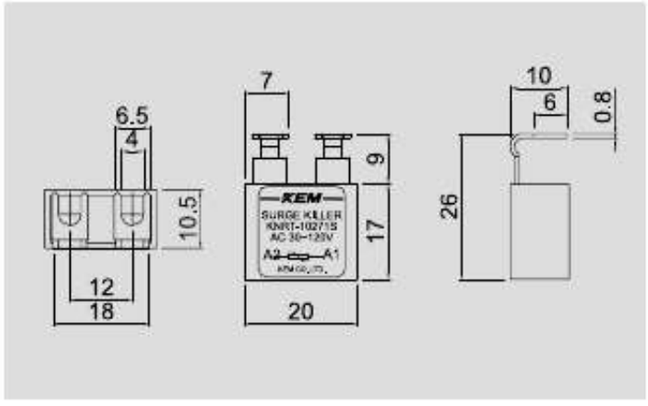
단상형 SINGLE PHASE TYPE

KNRT
- 10121S
- 10271S
- 10471S

DC용 / ONLY DC

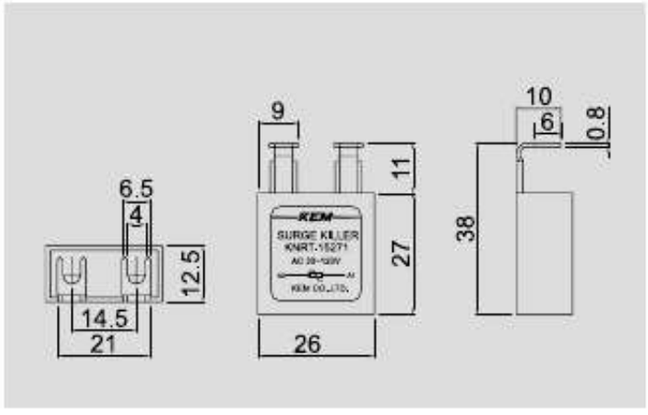
KNRDT-10820S





KNRT
- 15390
- 15560
- 15121
- 15271
- 15471

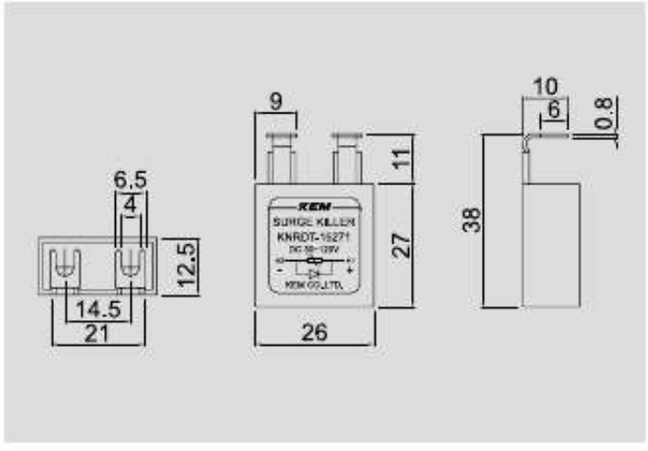




DC용 / ONLY DC

KNRDT
- 15390
- 15560
- 15820
- 15271
- 15471



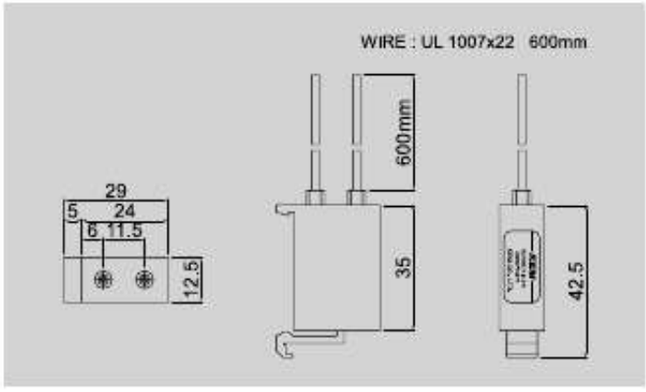


써지 킬러 - MC, 릴레이용 SURGE KILLER - MC, relay type

단상형 SINGLE PHASE TYPE

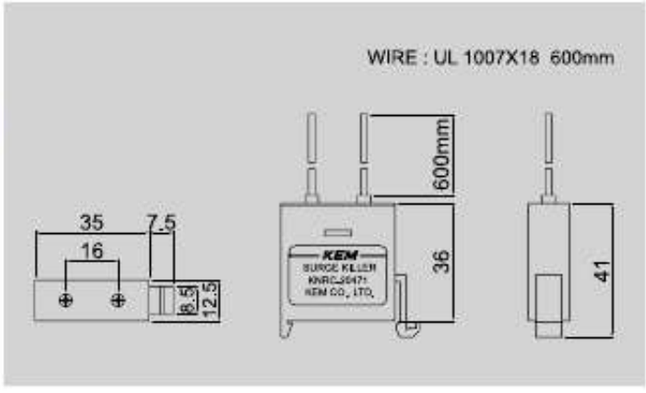
KNRC 15271 / 15471





KNRC-20471
KNRHC-20821





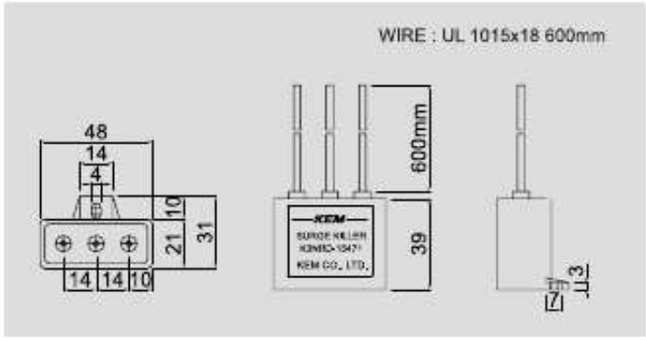
11_SPD.indd 143

써지 킬러 - MC, 릴레이용 SURGE KILLER - MC, relay type

삼상형 THREE PHASE TYPE

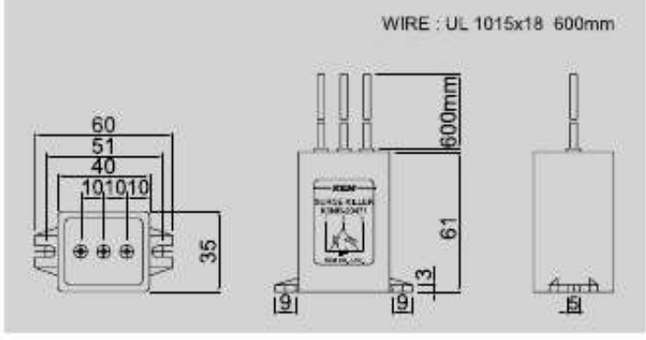
K3NRD-15471





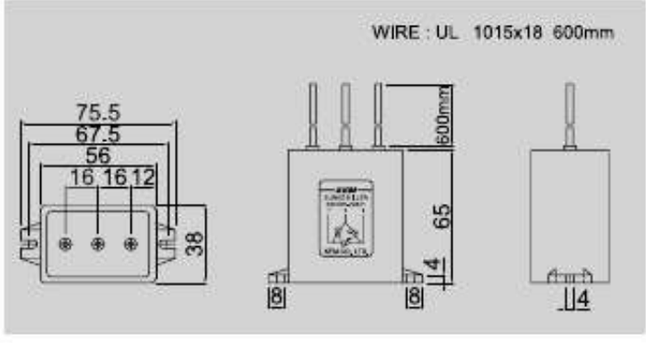
K3NR-20471





K3NRH 20821 / 20102 / 20152

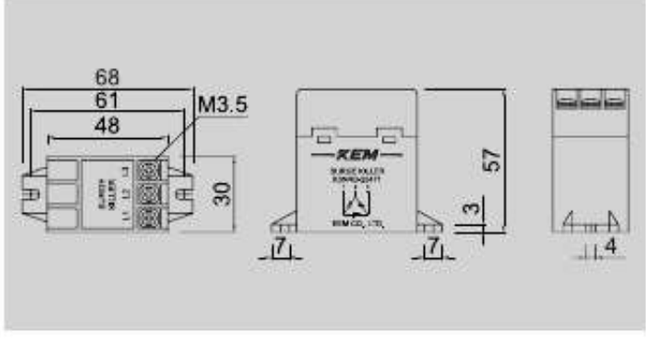




K3NRB 20471 / 25471

K3NRHB 25821 / 25102 / 25152

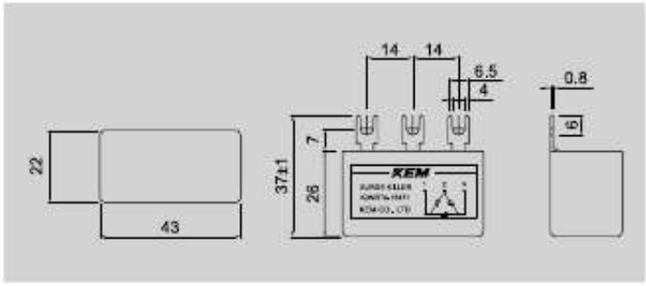




삼상형 THREE PHASE TYPE

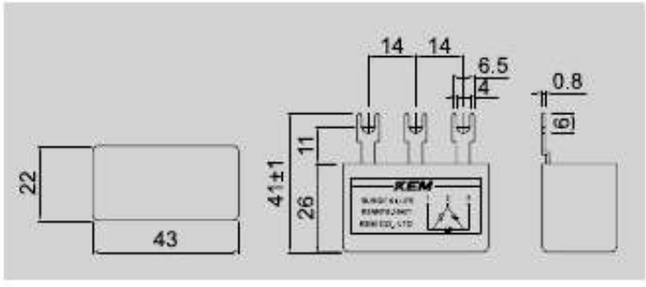
K3NRTA-15471





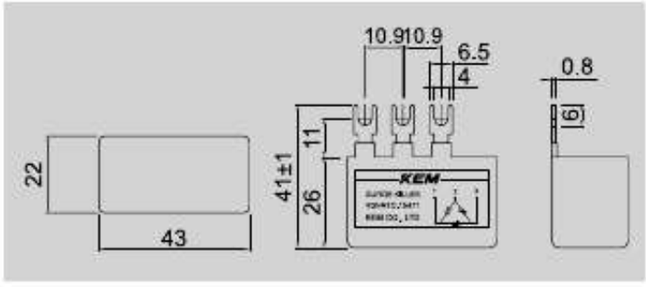
K3NRTB-15471





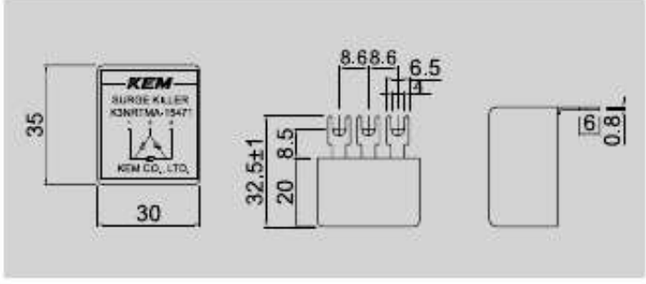
K3NRTC-15471





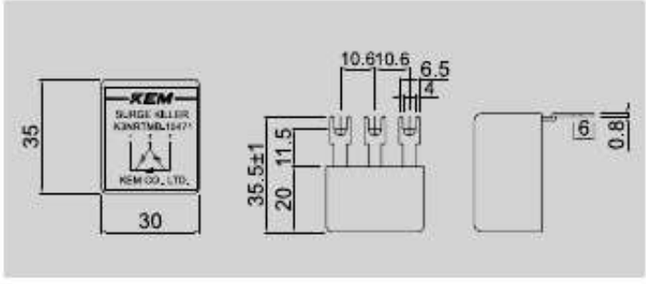
K3NRTMA-15471





K3NRTMB-15471





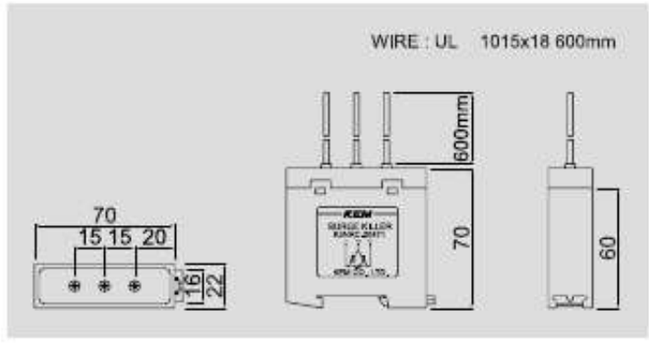
11_SPD.indd 145

써지 킬러 - MC, 릴레이용 SURGE KILLER - MC, relay type

삼상찬넬형 THREE PHASE CHANNEL TYPE

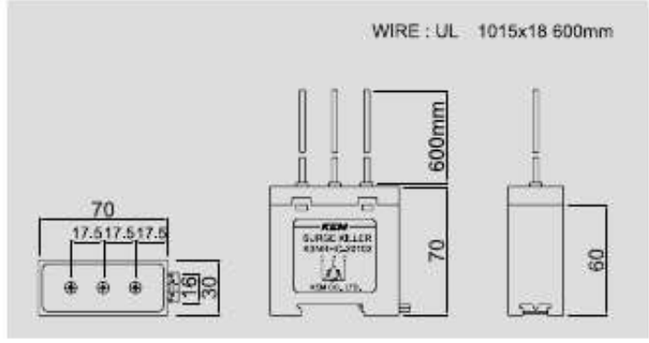
K3NRC 15471, 20471





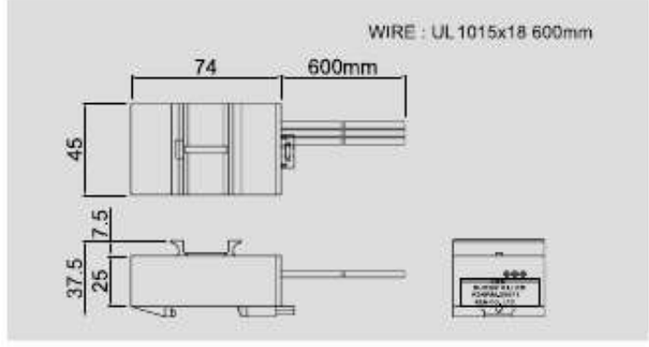
K3NRHC 20821, 20102, 20152





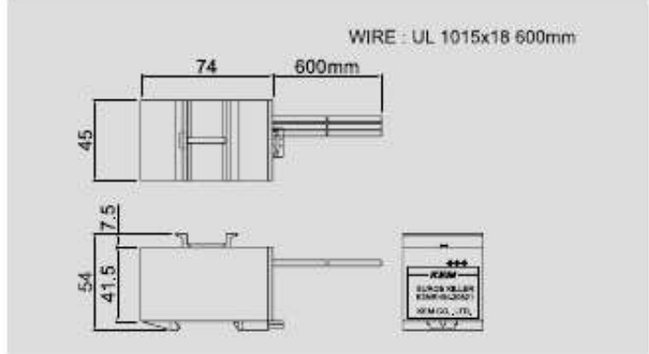
K3NRM-20471





K3NRHM 20821, 20102, 20152



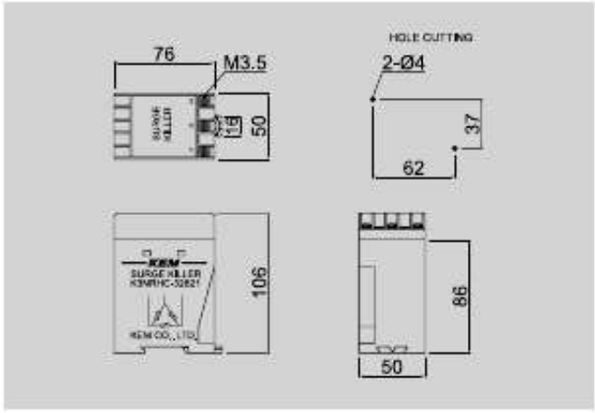


삼상찬넬형 THREE PHASE CHANNEL TYPE

K3NRC-32471

K3NRHC 32821 / 32102 / 32152

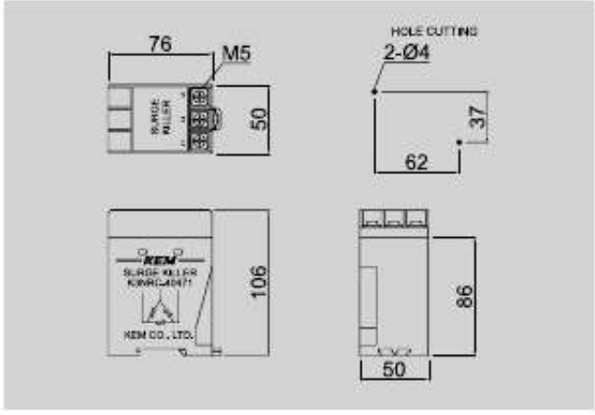




K3NRC-40471

K3NRHC 40821 / 40102 / 40152

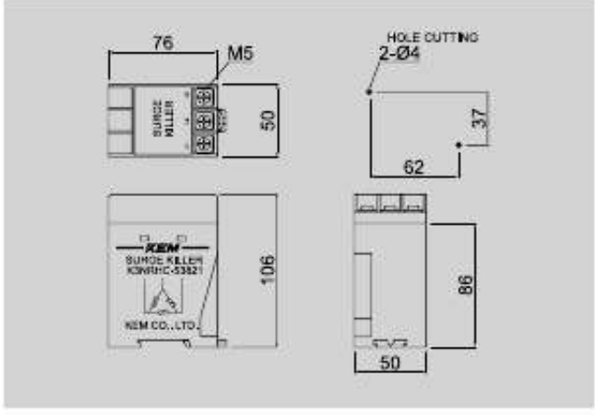




K3NRC-53471

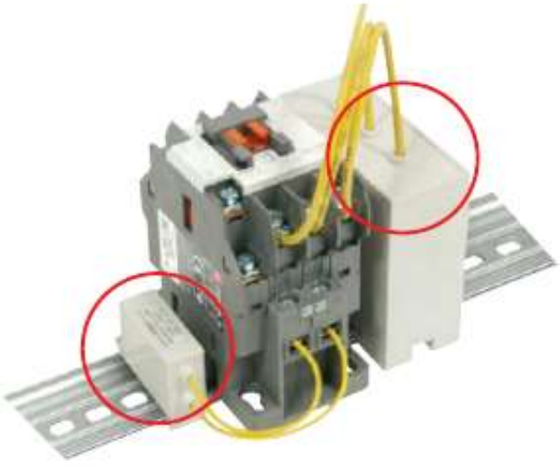
K3NRHC 53821 / 53102 / 53152



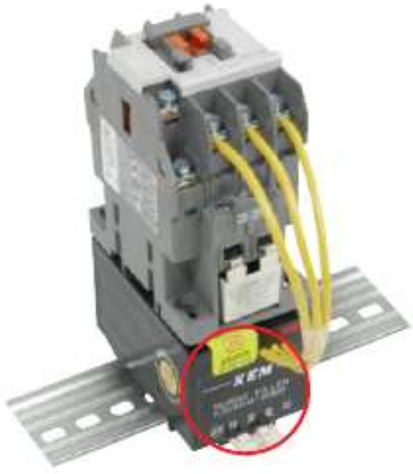


써지 보호 장치 SURGE KILLER

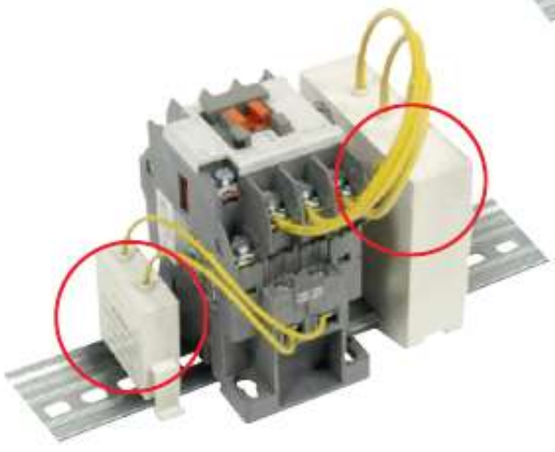
사용 예 / Usage



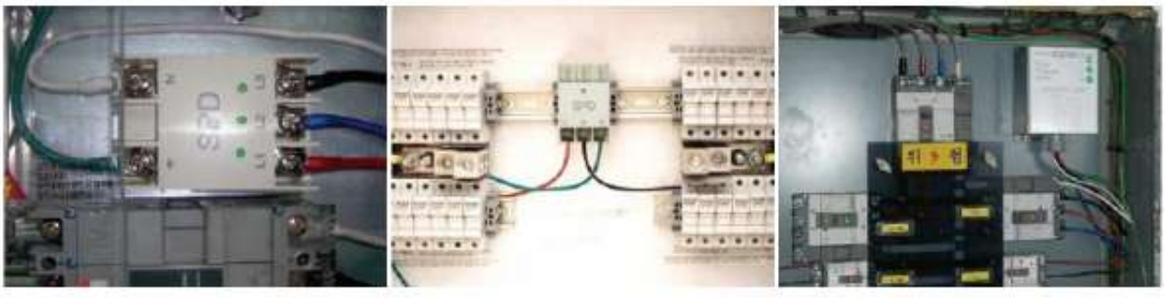
KNRC-15471 / K3NRHC-20102



K3NRHM-20821



KNRC-20471 / K3NRC-20471



SPARK KILLER
스파크 킬러



특허청 실용신안특허 등록

스파크 킬러

스파크 킬러

장치 내의 전기계를 기계로 변환할 때 전자 기계 기구 부품을 이용하는 경우가 많은데, 이때는 코일에 의한 인덕턴스 때문에 큰 에너지의 펄스 역전압이 발생합니다.

일반적으로 회로에 접점이 개폐될 경우, 그 접점에 전압이 인가되어 있으면 접점이 닫힐 때 전류가 흐르고 열릴 때는 인덕턴스에서 역기전력에 의해 전압이 발생하며, 불꽃과 함께 글로우, 아크 등이 발생하여 고주파 진동이 일어나 전자회로에 방해를 주는 원인이 됩니다.

접점은 불꽃 때문에 소모, 변형, 융착되며, 표면에 산화 접촉저항 등가, 접촉불량 등으로 접점 수명을 단축시키게 됩니다. 이 불꽃 발생을 방지하기 위해 접점 간에 삽입하는 회로를 불꽃 소거 회로라고 하며, 여기에 삽입하는 부품을 SPARK KILLER라고 합니다.

특 징

1. 과부하 내력이 큽니다.
2. 채터링 등 접점 진동에 의한 서지 전압에 대해 효과가 큽니다.
3. 외부 서지 전압에 효과가 큽니다.
4. 고 역주파수에 대해 임피던스가 아주 적어 저레벨의 고주파 잡음에 대해 억제력이 있습니다.
5. SCR, SSR 등의 보호 및 dv/dt의 개선용으로서 CR 시정수를 갖는데 효과가 큽니다.

형 식

K□CR□□-□□□-□

① ② ③ ④ ⑤ ⑥

①	위상	무	단상
		3	삼상
②	전압	무	저전압(110/220V)
		H	고전압(380/440V)
③	단자	무	선타입
		T	마그네트 코일 단자형
		M	찬넬 마그네트 일체형
		C	찬넬형
④	콘덴서	10	0.1 μF
		20	0.2 μF
		30	0.3 μF
		50	0.47μF
⑤	저 항	270	27Ω
		330	30Ω
		470	50Ω
		500	47Ω
		680	68Ω
		121	120Ω
		151	150Ω
		201	200Ω
		501	500Ω
⑥	옵션	4	단상 X 4 일체형

* 콘덴서, 저항의 조합은 사양표를 참조하세요.

SPARK KILLER

SPARK KILLER

It's often the case to use the electronic machine parts when transforming the electrical system into the machinery system of a device. In this case, the inductance of the coil creates the pulse counter voltage of high energy.

Let's suppose the case in which the contact point of circuit switches on and off. If there's voltage involved in the contact point, there is current when the contact point is closed. When it's open, the counter electromotive force of inductance creates voltage along with sparks, glows and ARC. In addition, the vibration of high frequency will potentially interfere with the electronic circuit.

Due to the sparks, the contact points get to be exhausted, transformed or desposited, the increased oxidative contact resistance on the surface and contact defects will reduce the Life. The circuit inserted between the contact points in order to prevent sparks is called the spark quench circuit, and it's parts are called SPARK KILLER.

Characteristics

1. It has a great durability of overload.
2. The effects of chattering and contact point vibration on the surge voltage are huge.
3. It's effects on exterior surge voltage are great.
4. Since it's impedance against the high counter frequency is very small, it can control the high frequency noise of low levels.
5. It protects SCR and SSR and Improves dv/dt, contributing to having the CR time constant.

Type

K□CR□□-□□□-□

① ② ③ ④ ⑤ ⑥

①	Phase	None	Single phase
		3	Three phase
②	Voltage	None	Low voltage(110/220V)
		H	High voltage(380/440V)
③	Terminal	None	Wire Type
		T	Magnet coil terminal type
		M	Channel internal magnet type
		C	Channel type
④	Condenser	10	0.1 μF
		20	0.2 μF
		30	0.3 μF
		50	0.47μF
⑤	Resistance	270	27Ω
		330	30Ω
		470	50Ω
		500	47Ω
		680	68Ω
		121	120Ω
		151	150Ω
		201	200Ω
		501	500Ω
⑥	Option	4	Single phase X 4

스파크 킬러

SPARK KILLER

사 양 / Specification

단상형 / Single phase type

Model	C (μF)	R (Ω)	L/V (Line Volt)
KCR-10201R	0.1	200	250
KCR-50500R	0.47	47	250
KCR-10201	0.1	200	250
KCR-10121	0.1	120	250
KCR-10470N	0.1	47	250
KCR-20151	0.2	150	250
KCR-20201	0.2	200	250
KCR-50500	0.47	47	250
KCR-20501	0.2	500	250
KCRT-10201S	0.1	200	250
KCRT-10201	0.1	200	250
KNCRT-15271	0.1	200	110
	14D271K		
KNCRT-15471	0.1	200	220
	14D471K		
KNCRB-10820	0.5	10	DC 24
	10D820		
KCR-10201X4	0.1	200	250
KCR-50500X4	0.47	47	250
KCRH-10680	0.1	68	500
KCRH-20470	0.2	50	500
KCRH-30330	0.3	30	500
KCRH-50270	0.47	27	500
KCRH-50270N	0.47	27	500
KCRC-10121	0.1	120	250
KCRC-10201	0.1	200	250
KCRC-20201	0.2	200	250
KCRC-20501	0.2	500	250
KCRC-50500	0.47	47	250
KCRHC-10680	0.1	68	500
KCRHC-20470	0.2	50	500
KCRHC-30330	0.3	30	500
KCRHC-50270	0.47	27	500

■ 사용온도 범위 : -25~+70℃
■ Operating Temperature : -25~+70℃
■ R(Ω), C(μF) 허용오차 ±20%

삼상형 / Three phase type

Model	C(μF)	R(Ω)	L/V(Line Volt)
K3CRD-10201	0.1	200	250
K3CRD-50500	0.47	47	250
K3CR-50500	0.47	47	250
K3CR-50500-3(L)	0.47	47	250
K3CRH-20201	0.2	200	500
K3CRH-10680	0.1	68	500
K3CRH-20470	0.2	50	500
K3CRH-30330	0.3	30	500
K3CRH-50270	0.47	27	500
K3CRHD-30330	0.3	30	500
K3CRHD-50270	0.47	27	500
K3CRTA-50500	0.47	47	250
K3CRTB-50500	0.47	47	250
K3CRTC-50500	0.47	47	250
K3CRTE-50500	0.47	47	250
K3CRTMA-50500	0.47	47	250
K3CRTMB-50500	0.47	47	250

삼상찬넬형 / Three phase channel type

Model	C(μF)	R(Ω)	L/V(Line Volt)
K3CRM-50500	0.47	47	250
K3CRHM-20470	0.2	50	500
K3CRHM-30330	0.3	30	500
K3CRHM-50270	0.47	27	500
K3CRC-10201	0.1	200	250
K3CRC-50500	0.47	47	250
K3CRHC-20201	0.2	200	500
K3CRHC-10680	0.1	68	500
K3CRHC-20470	0.2	50	500
K3CRHC-30330	0.3	30	500
K3CRHC-50270	0.47	27	500
K3CREB-50500	0.47	47	250
K3CRES-50500	0.47	47	250

용 도

- 각종 전기 개폐기구 회로
- 공작기계
- 자동화 기계

Use

- Various electric circuits for opening and closing
- Machine tools
- Automatic machines

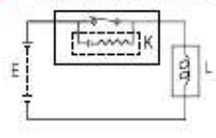
사용상의 주의

스파크 킬러에 투입되는 전원 주파수가 높은 경우 CR회로에 콘덴서의 도통 현상에 의하여 저항에서 높은 발열로 인하여 스파크 킬러에 이상이 발생될 수 있으니 사용 시에 스파크 킬러의 온도 상승이 5℃이하가 되도록 필히 점검하고 사용하시기 바랍니다.

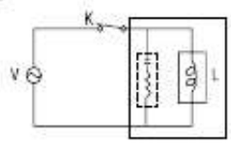
Instructions for use

When high frequency power is input to the spark killer due to the high heat from the resistor by conduction phenomenon of the capacitor in the CR circuit temperature increase of the spark killer in use , so a spark can occur or more or less so that the killer 5℃ we should use and inspection is essential.

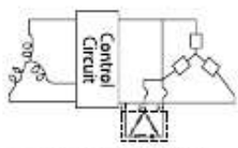
사용 예 / Use Example



A. 직류 회로용 (DC)
Direct current circuit



B. 교류 회로용 (AC)
Alternating current circuit



C. 교류 3상 회로용 (AC)
Alternating current three phase circuit

스파크 킬러 SPARK KILLER

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 인명사고 및 막대한 재산상의 피해가 우려되는 기기 등에 사용할 경우에는 반드시 2중으로 안전장치를 부착한 후에 사용하십시오.
2. 반드시 판넬에 취부하여 사용하십시오. 감전 및 오작동의 우려가 있습니다.
3. 감전방지 및 기기 고장방지를 위하여 모든 배선이 종료될 때까지 전원을 투입하지 마십시오.
4. 지정한 정격 이외로 사용 시에는 상해를 입거나 재산상의 손실이 발생할 수 있으므로 주의하여 주십시오.
5. 본 기기의 탈착은 전원을 OFF 한 후 조치하십시오. 감전, 오작동, 고장의 원인이 됩니다.
6. 통전 중에 본 기기를 분해하거나 단자에 접촉하지 마십시오. 감전, 오작동, 고장의 원인이 됩니다.
7. 제품 사용 시 주위 온도는 -25℃~+70℃ 범위 안에서 사용 하십시오.

Warning

1. When it use in a machine that might cause accidents of worker or enormous property damage, it should be used after the double safety device is attached.
2. In any case, it should be used while being attached on the panel. It might cause eletric shock or malfinctioning.
3. In order to prevent receving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
4. If it is used with the voltage other than the designated one, it might cause injury for human and property damage.
5. To separate the product, turn OFF the power supply first. It might cause electric shock, malfunctioning or breakdown.
6. Do not disassemble, process, remedy or repair this product in any case, because it might cause malfunctioning.
7. The usual temperature ranges from -25℃~+70℃.

주 의

1. 주문하신 사양과 일치하는지 확인하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어갔을 때에는 누전, 화재의 위험성이 있으므로 반드시 점검 하시기 바랍니다.
5. SPARK KILLER를 사용 시, 될 수 있으면 노이즈 등의 발생원 근처에 부착하십시오.
6. 배선 등의 L(리엑턴스) 성분에 의해 이상 진동을 일으키기도 하고, 고주파 성분에 대해서는 임피던스의 상승으로 흡수 효과가 저하할 수도 있습니다.
7. 규정의 펄스 조건을 준수하여 주십시오. 특히, 전원 주파수가 높은 경우 (70Hz 이상) 겹칠 때는 3상 전파정류회로 등에는 주의해 주십시오. 체크 방법으로 부착 후 부품의 온도 상승이 5℃ 이하로 되면 안전합니다.
8. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고없이 변경될 수 있습니다.

Attention

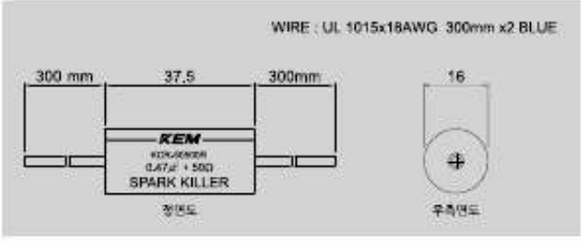
1. Make sure whether it is identical with the specification you have ordered.
2. Do not use it outside.
3. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.)and inflammable gases are generated.
4. In case of contacting water, make sure it is throughly inspected before use in order to prevent leakage of electricity or fire.
5. Attach the SPARK KILLER as close to the origin of noise as possible.
6. L elements including wiring can cause irregular vibration, and increasing impedance for high frequency elements can deteriorate the abcorption effects.
7. Be sure to follow the pulse condtions required. In particular, when it accompanies high power frequency(70Hz or higher), you need to be careful with three phase full-wave rectification circuit. you can assure safety by keeping the temperature increase of the parts within 5.
8. The specifications (colors and parts of design, etc.) are subject to change without prior notice

스파크 킬러 SPARK KILLER

단상형 SINGLE PHASE TYPE

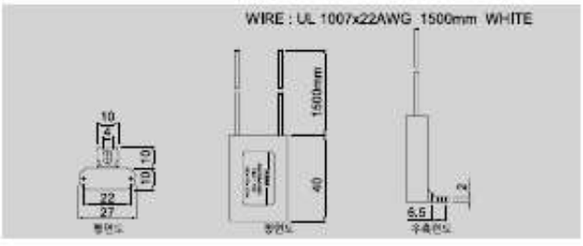
KCR [10201R / 50500R]





KNCRB-10820
바리스타 내장형
(DC 24V전용)

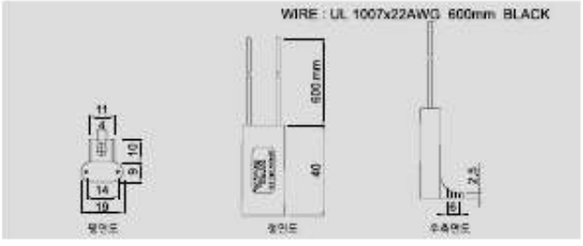




KCR [10201 / 10121]

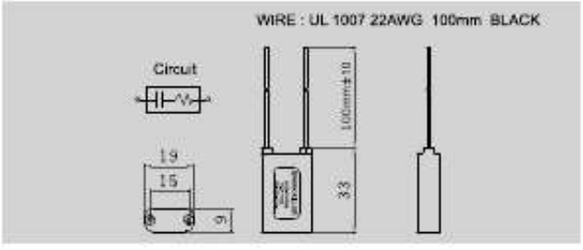


ex) KCR-10201 : 600mm
KCR-10201(L) : 1,500mm
(L)은 1,500mm길이로 제작됩니다.



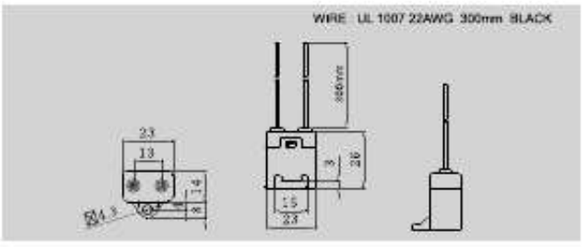
KCR-10470N NEW





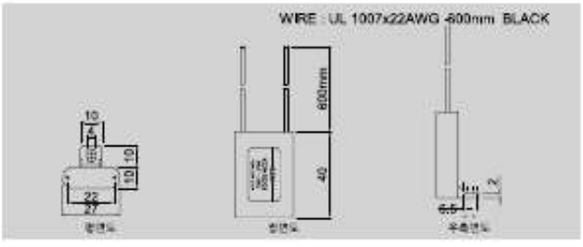
KCR-20151 NEW





KCR [20201 / 20501 / 50500]



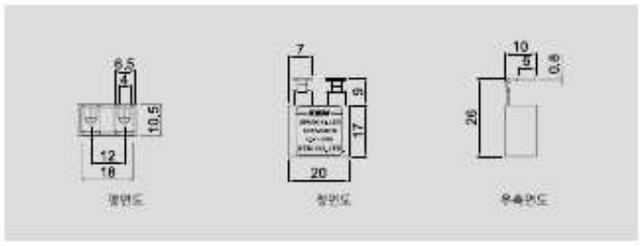


스파크 킬러 SPARK KILLER

단상형 SINGLE PHASE TYPE

KCRT-10201S



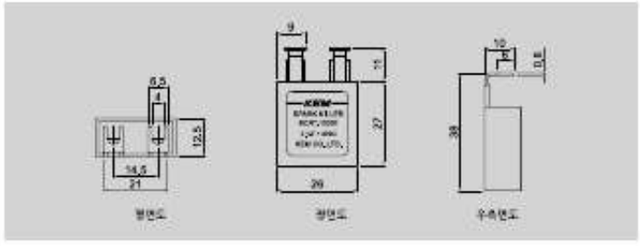


KCRT-10201

KNCRT [15271 / 15471

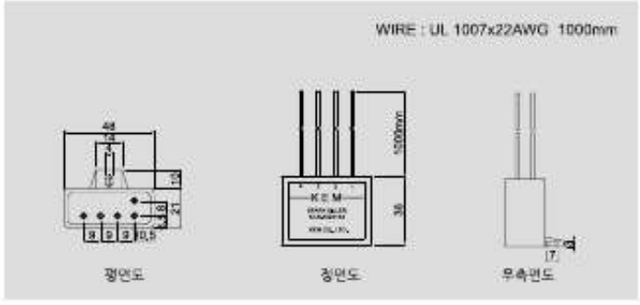
바리스타 내장형





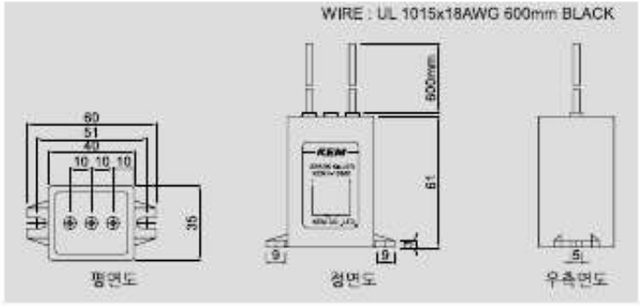
KCR [10201X4 / 50500X4





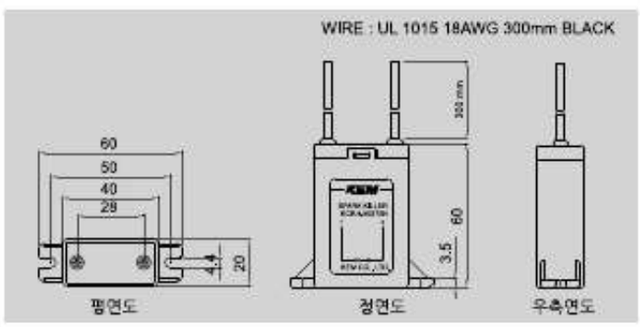
KCRH [10680 / 20470 / 30330 / 50270





KCRH-50270N NEW



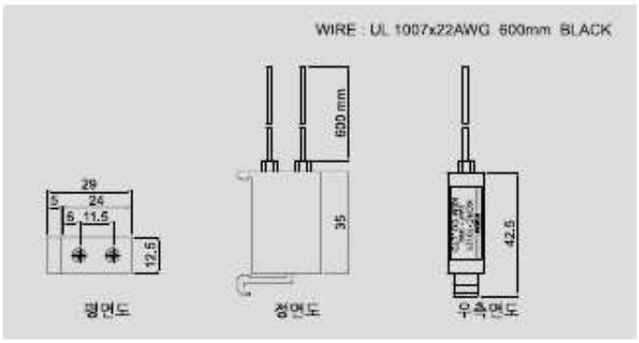


스파크 킬러 SPARK KILLER

단상형 SINGLE PHASE TYPE

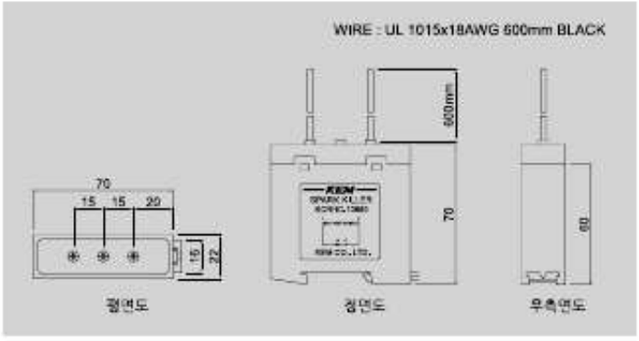
KCRC
- 10121
- 10201
- 20201
- 20501
- 50500





KCRHC
- 10680
- 20470
- 30330
- 50270

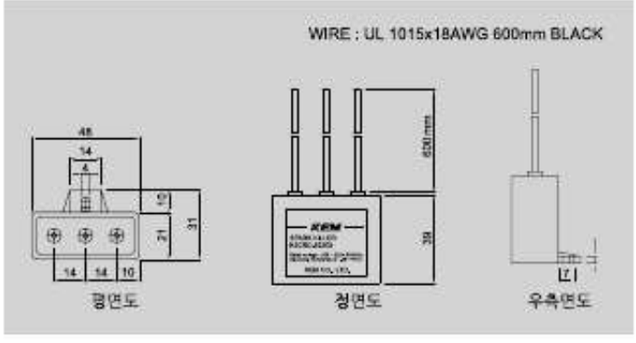




삼상형 THREE PHASE TYPE

K3CRD
- 10201
- 50500 c UL us

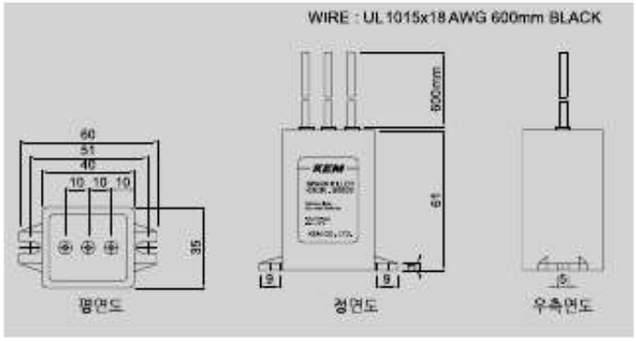




K3CR-50500

c UL us



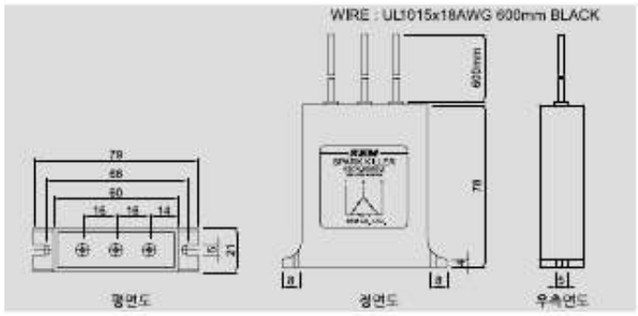


스파크 킬러 SPARK KILLER

삼상형 THREE PHASE TYPE

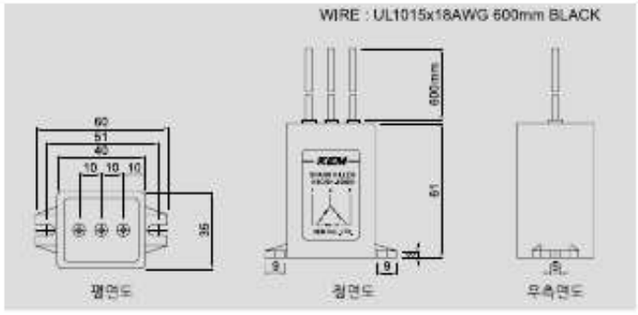
K3CR-50500-3 c UL us
K3CRH-20201





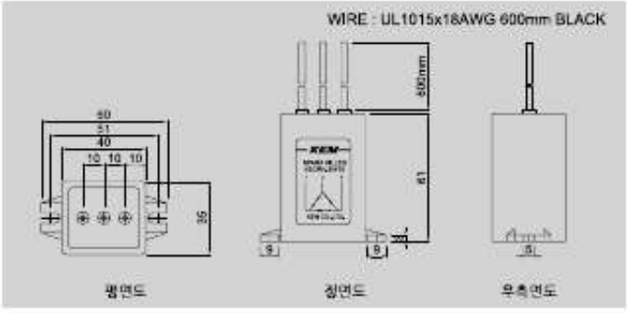
K3CRH-10680





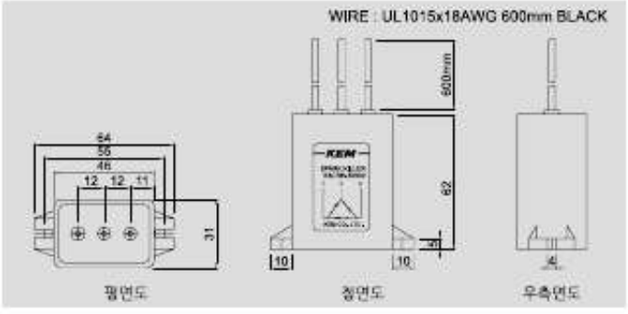
K3CRH-20470





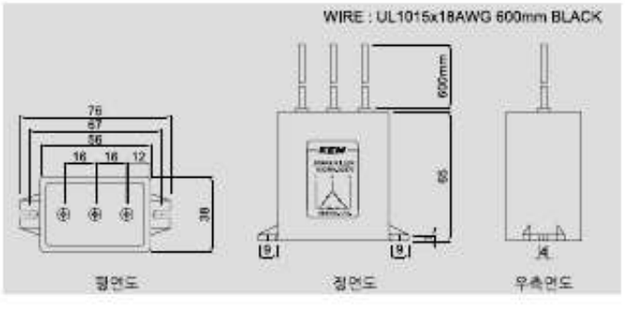
K3CRH-30330





K3CRH-50270

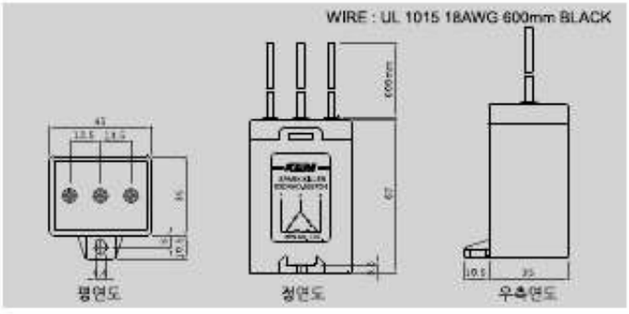




삼상형 THREE PHASE TYPE

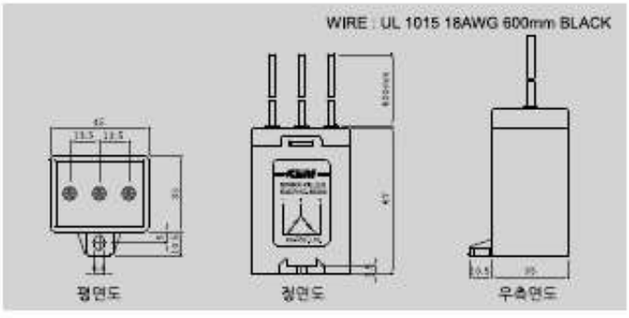
K3CRHD-50270 NEW





K3CRHD-30330 NEW

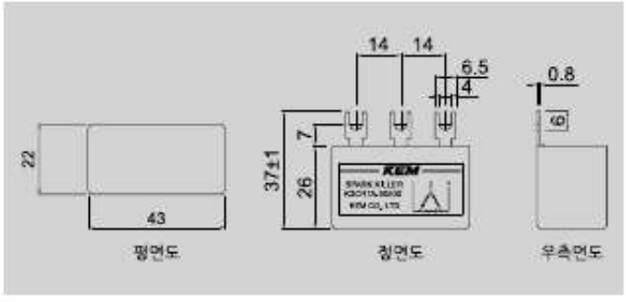




K3CRTA-50500

* Type : A(슈나이더)

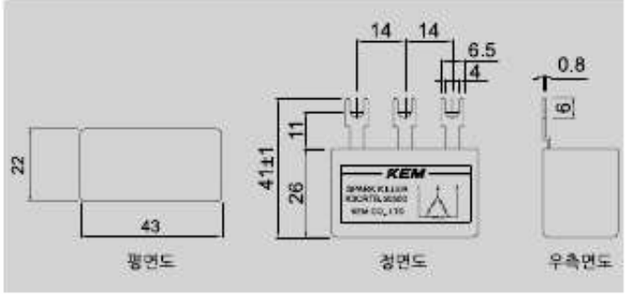




K3CRTB-50500

* Type : B(슈나이더)

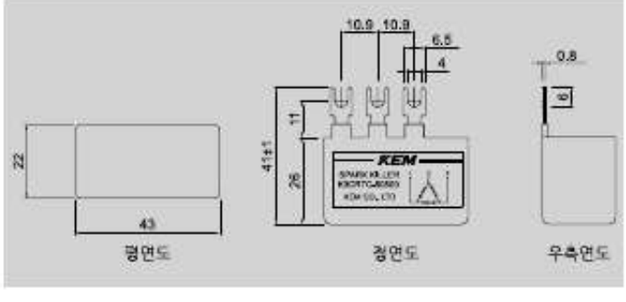




K3CRTC-50500

* Type : C(LS, FUJI)



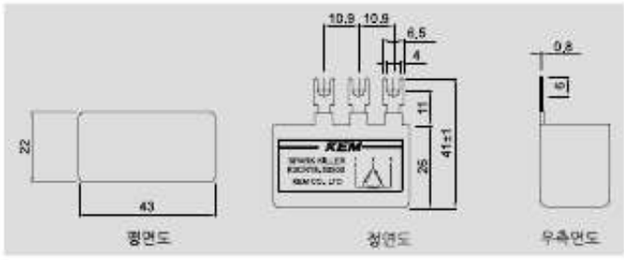


스파크 킬러 SPARK KILLER

삼상형 THREE PHASE TYPE

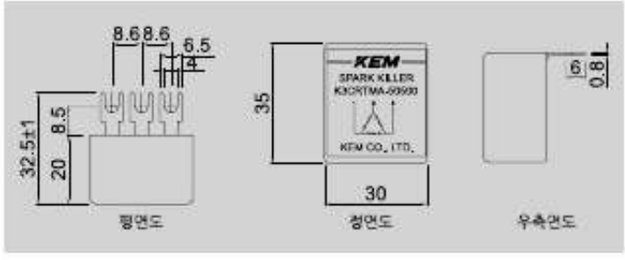
K3CRTE-50500
• Type : E(ABB)





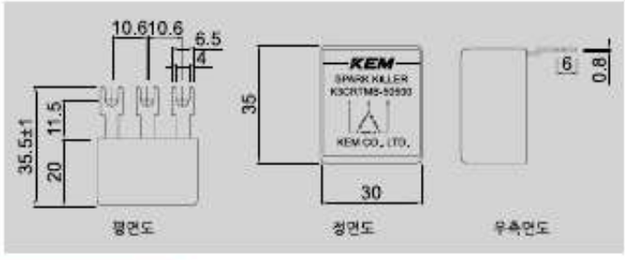
K3CRTMA-50500





K3CRTMB-50500

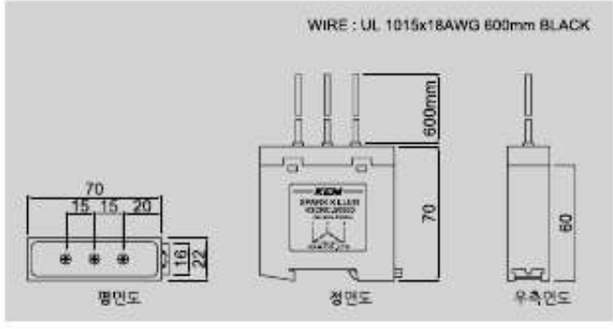




삼상찬넬형 THREE PHASE CHANNEL TYPE

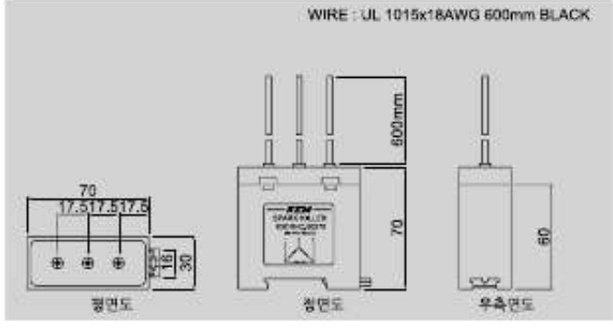
K3CRC
- 10201
- 50500





K3CRHC
- 20201
- 10680
- 20470
- 30330
- 50270

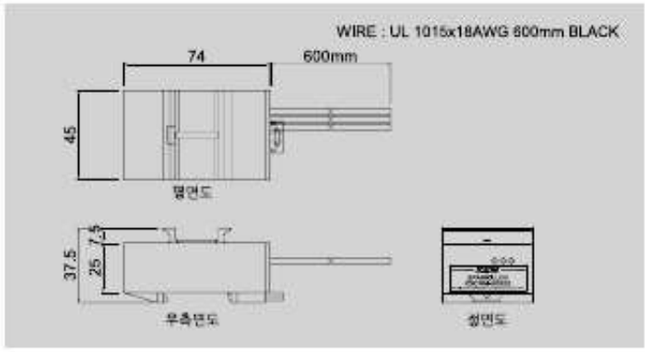




삼상찬넬형 THREE PHASE CHANNEL TYPE

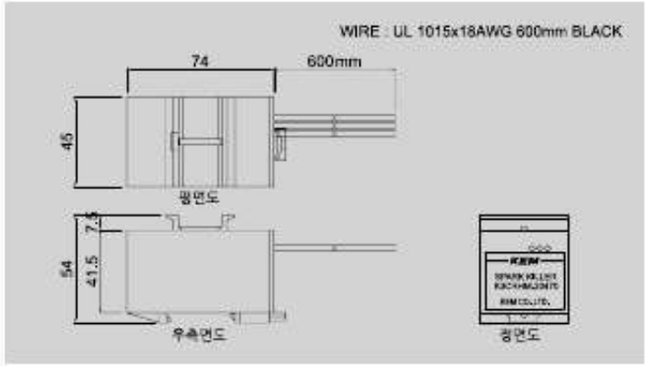
K3CRM-50500





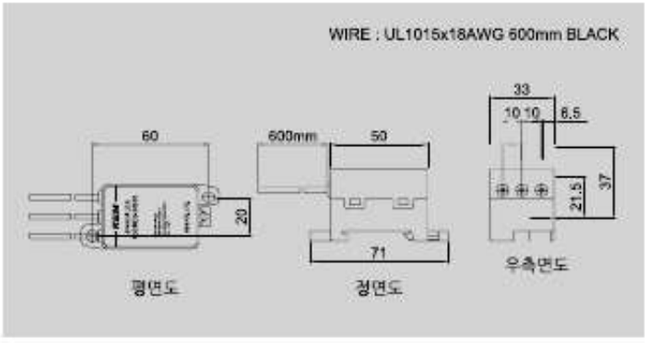
K3CRHM 20470 / 50270 / 30330





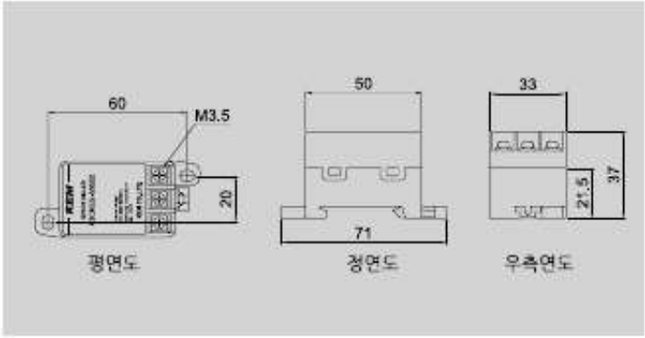
K3CREB-50500





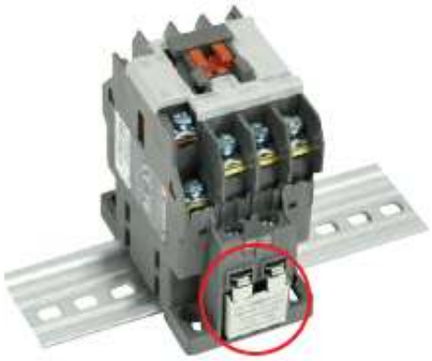
K3CRES-50500



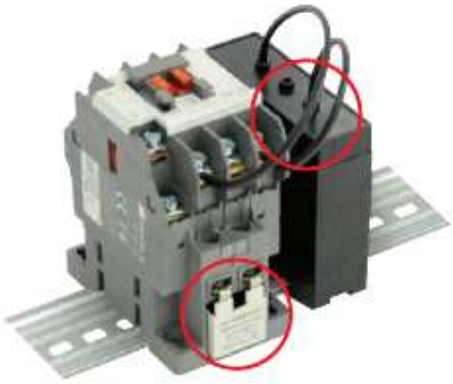


스파크 킬러 SPARK KILLER

사용 예 Usage



KCRT-10201S



KCRT-10201S / KCRHC-50270



KCRC-10201 / K3CRHC-50270



K3CRM-50500



K3CRHM-50270



KCRC-10201 / K3CRHM-50270

LED INDICATOR
LED 인디케이터



LED 인디케이터

특 징

1. **금속 몸체**
   외부 충격에 강합니다.
2. **다양한 색상**
   적색, 녹색, 황색, 백색, 청색
3. **다양한 디자인**
   선택의 폭이 다양합니다.
4. **반영구적인 수명**
   오랫동안 사용이 가능하여 경제적입니다.
5. **미려한 외관**
   전자, 전기 장비에 널리 사용됩니다.
6. **측면 시야**
   다양한 돌출형 디자인

LED INDICATOR

Characteristics

1. **Metal Body**
   It's strong against impacts.
2. **Various Colors**
   Red, Green, Yellow, White, Blue.
3. **Diverse Design**
   Variety chances to choose.
4. **Semi-Permanent**
   It's economical
5. **Great Appearance**
   It's contributes to apply in electronic equipments widely.
6. **Visble in Various Sides**
   A various of projected designs.

사 양 / Specification

일반형 (Normal)	색상 / Color	Red ●	Green ●	Yellow ●	• White ○	
	점등 색상 / Lighting color	Red ●	Green ●	Yellow ●	• Red ●	
고휘도형 (High Brightness)	색상 / Color	투명 (KLU만 해당) / Trensparency (Only KLU type)				
		Red ●	Green ●	Yellow ●	White ○	Blue ●
	점등 색상 / Lighting color	Red ●	Green ●	Yellow ●	White ○	Blue ●
동작전류(mA) Operating current(mA)		10~20mA이하(DC 24V 기준) / 10~20mA or lower(Based on DC24V)				
		AC용은 10mA이하 / 10mA or lower for AC				
사용 주위온도(°C) Ambient temperature(°C)		-25~+60°C				
내전압(V) Dielectric strength(V)		AC 500V 50/60Hz 60sec				
절연 저항(MΩ) Insulation resistance(MΩ)		DC 500V 100(MΩ) MIN				
재질·도금 Material · plating		황동, 크롬 도금, 블랙 크롬 Brass, Chrome plating, Black chrome				

특이사항

1. LED 점등 색상에서 **일반휘도** 백색 LED는 점등 시 적색, **고휘도** 백색 LED는 점등 시 백색이 점등 됩니다.
2. HD형 제품은 일반적인 잔류 전압에 의한 반불현상이 일어나지 않습니다.
3. 렌즈형 제품의 경우 주위환경에 따라서 불 밝기가 달라질 수 있습니다.
4. 전압은 DC(3V, 5V, 12V, 24V, 48V), AC(110V, 220V)까지 제작 가능합니다.

Remarks

1. Even though the lights-out color of the genaral brightness white LED is white, it lights red. But the high brightness white LED lights white.
2. In case of HD type, it prevents to turn on the dimlight, caused by residual voltage.
3. When it is a lens-type product, the lighting might be dim depending on the surrounding enviroment.
4. The voltage DC(3V, 5V, 12V, 24V, 48V) AC(110V, 220V) is manufacture.

LED 인디케이터 LED INDICATOR

형 식 / Type

KL□-□□□□

❶ ❷ ❸ ❹ ❺

				06Ø	08Ø	10Ø	12Ø	16Ø	22Ø
❶	LED 휘도 (LED Brightness)	일반 휘도형 (General Brightness)	무(None)	●	●	●	●		
			B			●			
			H	●	●	●	●		
			IS		●				
			JS		●				
			RA					●	
		고휘도형 (High Brightness)	U	●	●	●	●	●	
			XU	●	●				
			CU		●		●		
			DU		●	●	●		
			EU				●		
			FU				●		
			GU				●		
			HU	●	●				
			PU				●		
			HD		●	●	●	●	
			DSU		●				
			ISU		●				
			JSU		●				
			RAU		●	●	●	●	●
			BRAU			●			
			CRAU		●	●	●	●	
			HRAU		●	●	●	●	
			HRANU		●	●	●	●	
			PRBU				●		

❷	판넬 기공 치수 (Dimension of panel processing)	06		06Ø
		08		08Ø
		10		10Ø
		12		12Ø
		16		16Ø
		22		22Ø
❸	사용전압 (Usage voltage)	A	110	AC 110V
			220	AC 220V
		D	03	DC 3V
			05	DC 5V
			12	DC 12V
			24	DC 24V
			48	DC 48V
❹	LED 색상 (LED Color)	R		적색 (Red)
		G		녹색 (Green)
		Y		황색 (Yellow)
		B		청색 (Blue)
		W		백색 (White) • 일반휘도형은 점등 시 적색 (General brightness type lights red)
		R, G		2색 (Two color) •기본(Standard)"-"Com/주문(Order)"+"Com
		R, G, Y		3색 (Three color)
❺	단자형식 (Terminal)	무		기본형 (General type)
		L		전선형 - 6Ø,22Ø제외 (Wire type - Except 6Ø,22Ø)
		T		볼트형 - 16Ø, 22Ø

LED 인디케이터

보호 저항치 계산법

$$R \geq \frac{Edc - V_F}{I_F}$$

- R : 보호 저항치 (Ω)
- Edc : 직류 공급 전압(V)
- VF : 직류 순방향 전압(V)
- IF : 직류 순방향 전류(mA)

계산 예

Edc = 24V, IF = 10mA

$$R \geq \frac{24-2}{0.01} = 2{,}200\ \Omega$$

V_F : 2V

LED INDICATOR

How to calculate the protection resistance values

$$R \geq \frac{Edc - V_F}{I_F}$$

- R : The protection resistance values (Ω)
- Edc : The direct current supply voltage (V)
- VF : The direct current forward voltage (V)
- IF : The direct current forward ampere(mA)

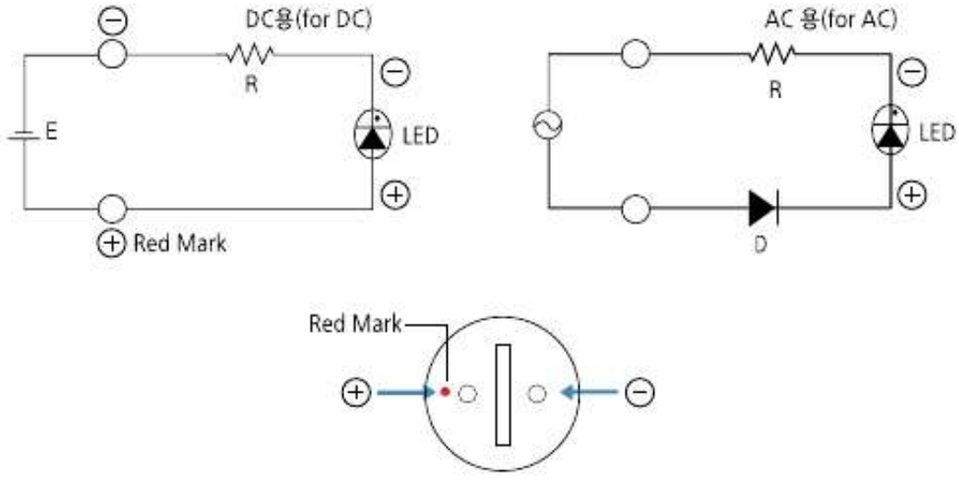
The example of calculation

Edc = 24V, IF = 10mA

$$R \geq \frac{24-2}{0.01} = 2{,}200\ \Omega$$

V_F : 2V

회로 구성도 / Circuit block diagram



LED 인디케이터

LED INDICATOR

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 반드시 판넬에 취부하여 사용하십시오.
   감전 및 오작동의 우려가 있습니다.
2. 감전방지 및 기기 고장방지를 위하여 모든 배선이 종료 될 때까지 전원을 투입하지 마십시오.
3. 가스 근처에서 사용금지.
   방폭구조가 아니므로 가연성, 폭발성 가스가 있는 장소에서는 사용하지 마십시오.
4. 전원을 입력(ON)시키기 전에 반드시 결선이 올바르게 되어 있는지 확인하십시오.
5. 본 기기의 파손 방지 및 고장 방지를 위하여 정격에 맞는 전압을 사용하여 주십시오.
6. 본 기기는 절대로 분해, 가공, 개선, 수리하지 마십시오.
   이상 동작, 감전, 화재의 위험이 있습니다.

주 의

1. 실외에서 사용하지 마십시오.
2. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
3. 물이 들어갔을 때에는 누전, 화재의 위험성이 있으므로 반드시 점검 하시기 바랍니다.
4. 제품의 설치 및 분리는 전원을 OFF 한 후에 실시하여 주십시오.
5. 단자의 극성을 확인한 후 배선을 정확하게 연결 바랍니다.
6. 제품의 품질 향상을 위하여 부품 사양 및 디자인이 예고 없이 변경될 수 있습니다.

Warning

1. In any case, it should be used wile being attached on the panel. It might cause electric shock or malfunctioning.
2. In order to prevent receiving electric shock and malfunctioning of the machine, do not supply power until all the wiring is completed and ended.
3. Do not use with or near the gas.
   It is not explosion-proof, therefore, do not use it near the inflammable or explosive gas.
4. Before turning on the power, make sure whether the wires are connected correctly.
5. To prevent breakage and malfunctioning of this product, appropriate power voltage should be supplied.
6. In any case, do not disassemble, process, remedy, or repair this product. it might cause malfunctioning, electric shock or fire.

Attention

1. Do not use it outside.
2. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.)and inflammable gases are generated.
3. In case of contacting water, make sure it is throughly inspected before use in order to prevent leakage of electricity or fire.
4. For installation and separation of this product, make sure the power is OFF.
5. Make a correct wiring after checking the plus and minus of the terminal.
6. The specifications (colors and parts of design, etc.) are subject to change without prior notice for quality improvement of the product.

LED 인디케이터 LED INDICATOR

6Ø

KLXU-06A W NEW



High Brightness	
OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y Ⓦ B

KLXU-06D W NEW



High Brightness	
OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y Ⓦ B

KL-06D03 R



General Brightness	
OFF	R G Y Ⓦ
ON	R G Y W

KLH-06D03 R



General Brightness	
OFF	R G Y Ⓦ
ON	R G Y W

KL-06D 24 Y KLU-06D 24 W



General Brightness		High Brightness	
OFF	R G Y Ⓦ	OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y W	ON	R G Y Ⓦ B

KLH-06D 24 G KLHU-06D 24 W



General Brightness		High Brightness	
OFF	R G Y Ⓦ	OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y W	ON	R G Y Ⓦ B

KL-06A 220 G KLU-06A 220 W



General Brightness		High Brightness	
OFF	R G Y Ⓦ	OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y W	ON	R G Y Ⓦ B

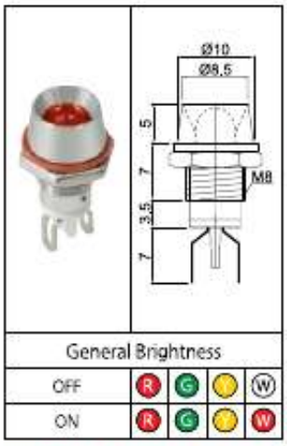
KLH-06A 220 R KLHU-06A 220 W



General Brightness		High Brightness	
OFF	R G Y Ⓦ	OFF	○ 소등 시 투명, 점등 시 각 색상
ON	R G Y W	ON	R G Y Ⓦ B

8Ø

KL-08D03 R



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLH-08D03 G



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLCU-08D03 G



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

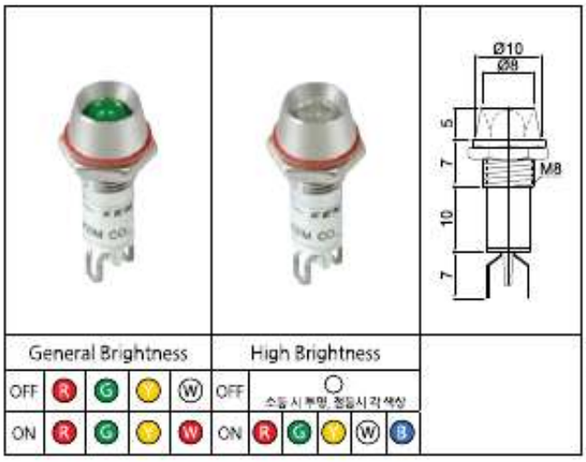
KLDU-08D03 G



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

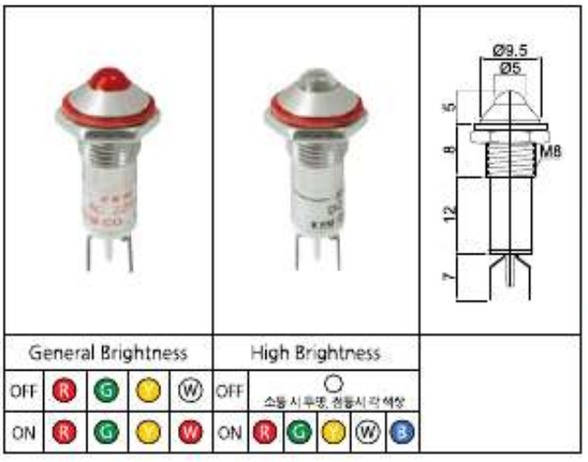
*8Ø 3V 미니타입 제품 내부에 저항이 없습니다. RED, YELLOW 사용시 저항 (예:82Ω)을 추가 연결을 추천드립니다.

KL-08 D 24 G KLU-08 D 24 W



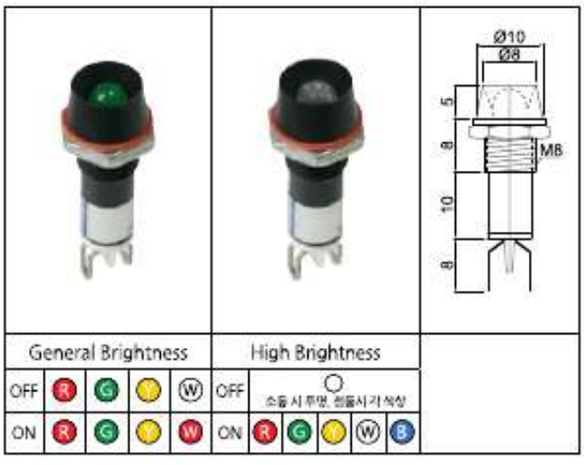
General Brightness					High Brightness					
OFF	R	G	Y	W	OFF	○ 소등 시 투명, 점등시 각 색상				
ON	R	G	Y	W	ON	R	G	Y	W	B

KLH-08 A 22 R KLHU-08 D 24 W



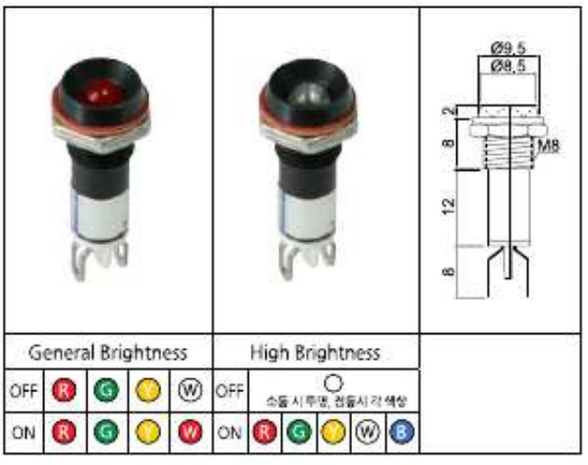
General Brightness					High Brightness					
OFF	R	G	Y	W	OFF	○ 소등 시 투명, 점등시 각 색상				
ON	R	G	Y	W	ON	R	G	Y	W	B

KLIS-08 D 24 G KLISU-08 D 24 W



General Brightness					High Brightness					
OFF	R	G	Y	W	OFF	○ 소등 시 투명, 점등시 각 색상				
ON	R	G	Y	W	ON	R	G	Y	W	B

KLJS-08 D 24 R KLJSU-08 D 24 W



General Brightness					High Brightness					
OFF	R	G	Y	W	OFF	○ 소등 시 투명, 점등시 각 색상				
ON	R	G	Y	W	ON	R	G	Y	W	B

오일 킬러 OIL KILLER
인터페이스 커버 INTERFACE COVER
정류기 POWER CONVERTOR
역 결상 계전기 PHASE MONITORING RELAY
풋 스위치 FOOT SWITCH
푸쉬 버튼 스위치 PUSH BUTTON SWITCH
코드 스위치 CODE SWITCH
노브 KNOB
로타리 스위치 ROTARY SWITCH
써지 보호 장치 SURGE PROTECTIVE DEVICE
스파크 킬러 SPARK KILLER
LED 인디케이터 LED INDICATOR
노 퓨즈 브레이커 핸들 N.F.B HANDLE
케이블 그랜드 CABLE GLAND
팬 커버 FAN COVER
힌지/록커/키 HINGE/LOCKER/KEY
로드메터·알피엠메터 LOAD METER·RPM METER
기타 품목 THE OTHER PRODUCTS

LED 인디케이터 LED INDICATOR

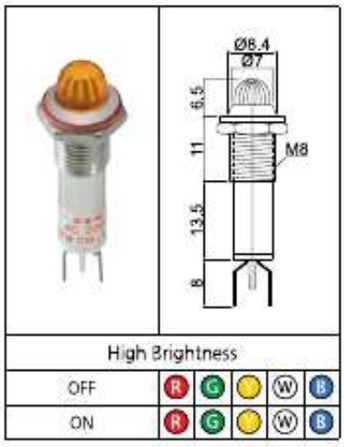
8Ø

KLRAU-08 D 24 R



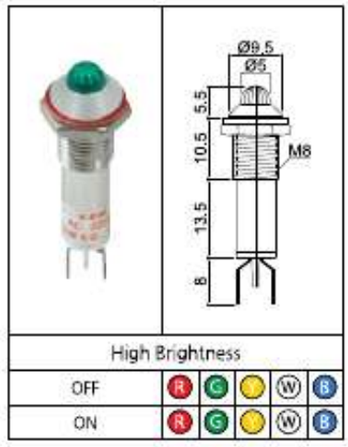
High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLCRAU-08 A 220 Y



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLHRAU-08 A 220 G



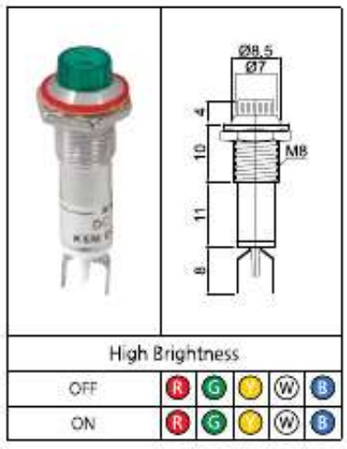
High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLHRANU-08 A 220 W



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLCU-08 D 24 G



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLDU-08 D 24 G



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLDSU-08 D 24 R



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLXU-08 A 220 W NEW



High Brightness	
OFF	○ 소등시무광, 점등시각색상
ON	R G Y W B

KLXU-08 D 24 W NEW

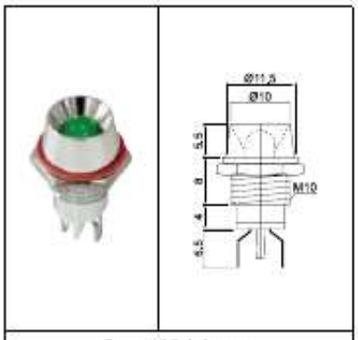


High Brightness	
OFF	○ 소등시무광, 점등시각색상
ON	R G Y W B

LED 인디케이터 LED INDICATOR

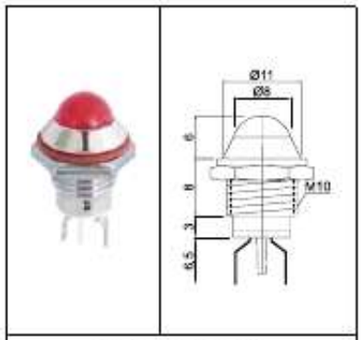
10Ø

KL-10D03 G



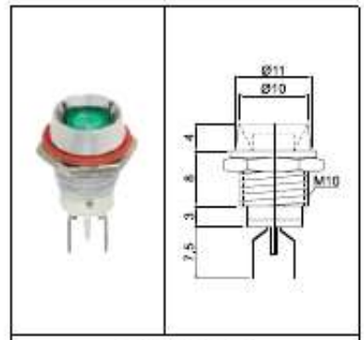
General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLH-10D03 R



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

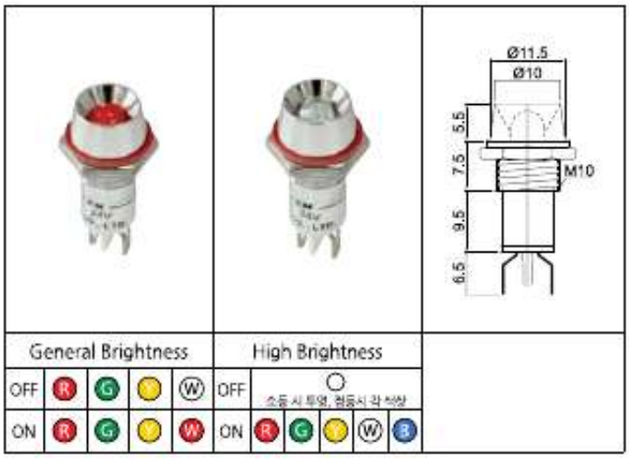
KLDU-10D03 R



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

*10Ø 3V 미니타입 제품 내부에 저항이 없습니다. RED YELLOW 사용시 저항 (예:82Ω)을 추가 연결을 추천드립니다.

KL-10 D 24 R KLU-10 D 24 W



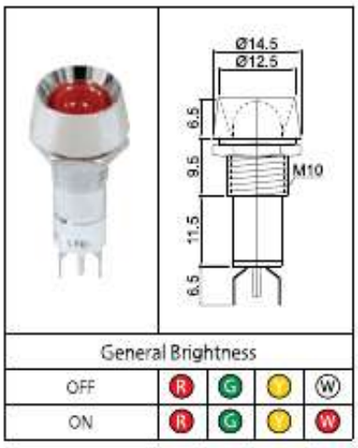
General Brightness					High Brightness					
OFF	R	G	Y	W	OFF	○ 소등시 투명, 점등시 각 색상				
ON	R	G	Y	W	ON	R	G	Y	W	B

KLH-10 D 24 G



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLB-10 D 24 R

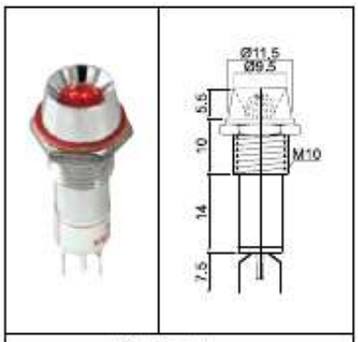


General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

LED 인디케이터 LED INDICATOR

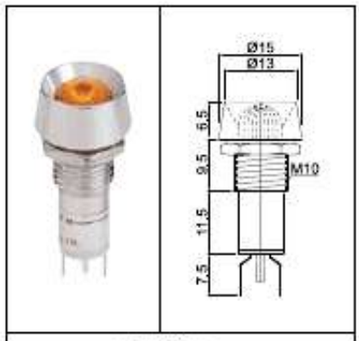
10Ø

KLRAU-10 A 220 R



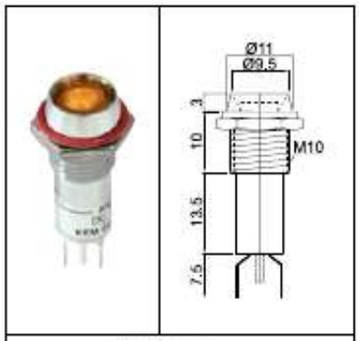
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLBRAU-10 D 24 Y



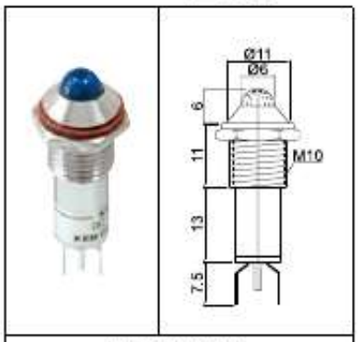
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLDU-10 D 24 Y



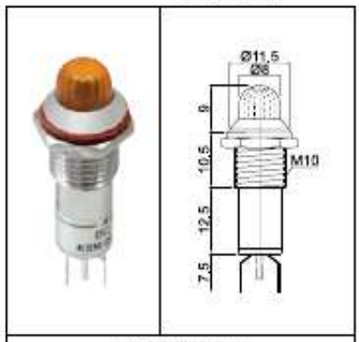
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHRAU-10 D 24 R



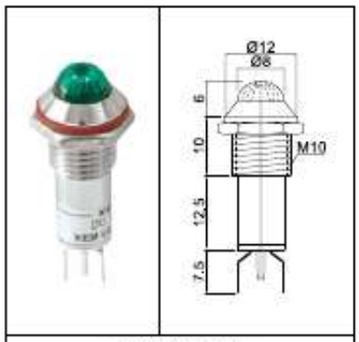
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLCRAU-10 D 24 Y



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

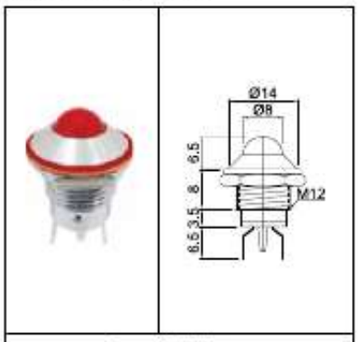
KLHRANU-10 D 24 G



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

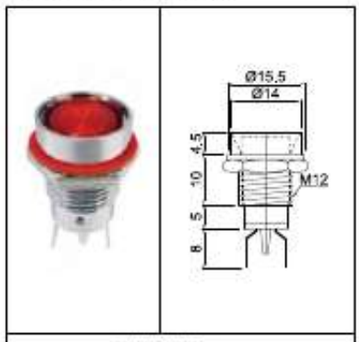
12Ø

KLH-12D03 R



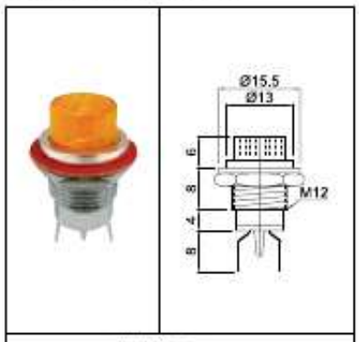
General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLFU-12D03 R



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLGU-12D03 Y

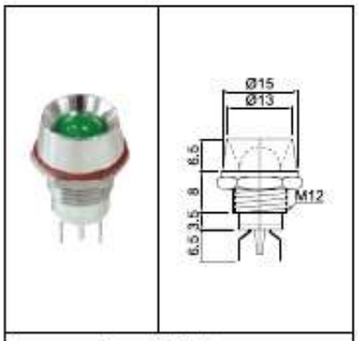


High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

*12Ø 3V 미니타입 제품 내부에 저항이 없습니다. RED YELLOW 사용시 저항 (예:82Ω)을 추가 연결을 추천드립니다.

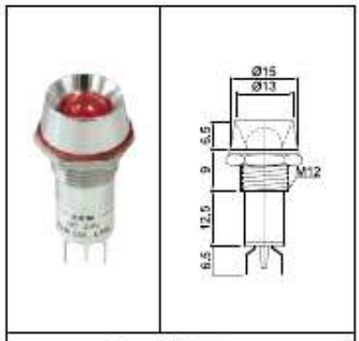
12Ø

KL-12D03 G



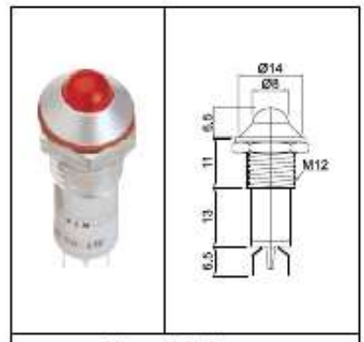
General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KL-12 D 24 R



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

KLH-12 D 24 R



General Brightness				
OFF	R	G	Y	W
ON	R	G	Y	W

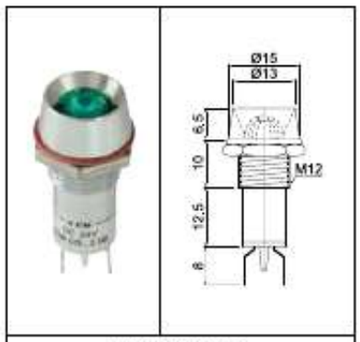
*12Ø 3V 미니타입 제품 내부에 저항이 없습니다. RED YELLOW 사용시 저항 (예:82Ω)을 추가 연결을 추천드립니다.

KLU-12 D 24 W



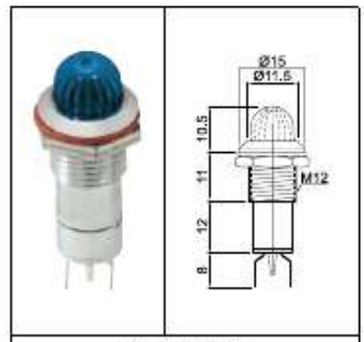
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLRAU-12 D 24 G



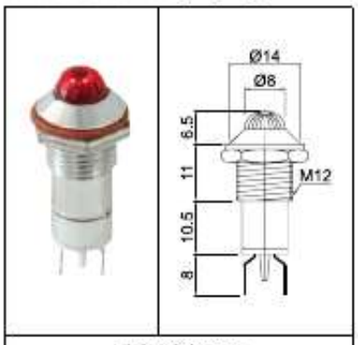
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLCRAU-12 D 24 W



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHRAU-12 D 24 R



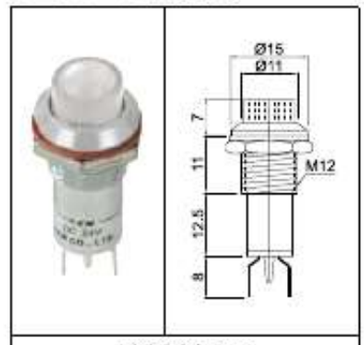
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHRANU-12 D 24 Y



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLCU-12 D 24 W



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

오일 킬러 OIL KILLER
인터페이스 커버 INTERFACE COVER
정류기 POWER CONVERTOR
역 결상 계전기 PHASE MONITORING RELAY
풋 스위치 FOOT SWITCH
푸쉬 버튼 스위치 PUSH BUTTON SWITCH
코드 스위치 CODE SWITCH
노브 KNOB
로타리 스위치 ROTARY SWITCH
써지 보호 장치 SURGE PROTECTIVE DEVICE
스파크 킬러 SPARK KILLER
LED 인디케이터 LED INDICATOR
노 휴즈 브레이커 핸들 N.F.B HANDLE
케이블 그랜드 CABLE GLAND
팬 커버 FAN COVER
힌지/록커/키 HINGE/LOCKER/KEY
로드메타·알피엠메타 LOAD METER·RPM METER
기타 품목 THE OTHER PRODUCTS

LED 인디케이터 LED INDICATOR

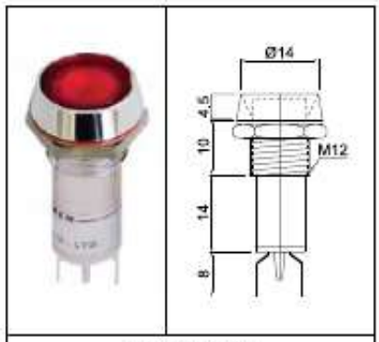
12Ø

KLDU-12 D 24 G



	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

KLEU-12 D 24 R



	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

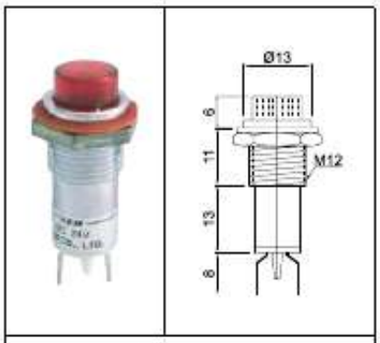
KLFU-12 D 24 R



	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

PLASTIC TYPE

KLGU-12 D 24 R



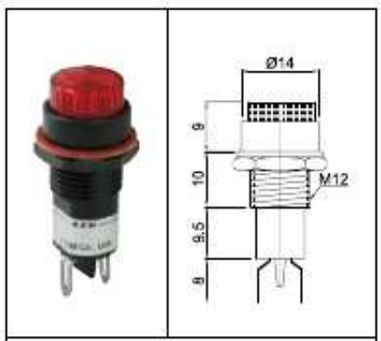
	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

KLPRBU-12 D 24 Y



	High Brightness		
OFF	R	G	W
ON	R	G	W

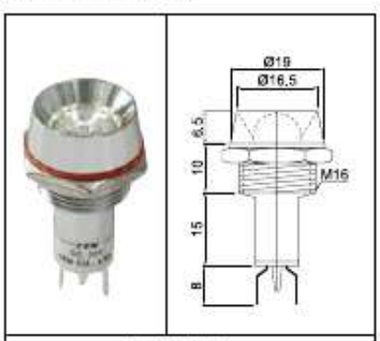
KLPU-12 D 24 R



	High Brightness			
OFF	R	G		W
ON	R	G		W

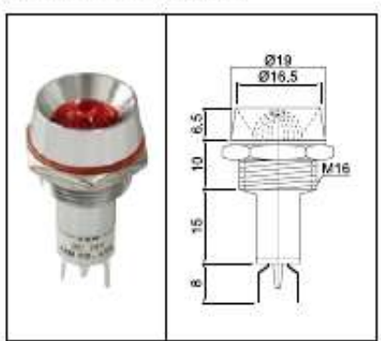
16Ø

KLU-16 D 24 W



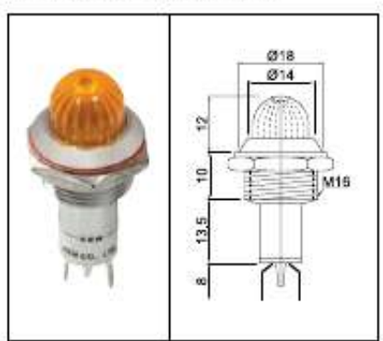
	High Brightness				
OFF	○ 소등 시투명, 점등시 각 색상				
ON	R	G		W	B

KLRAU-16 D 24 R



	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

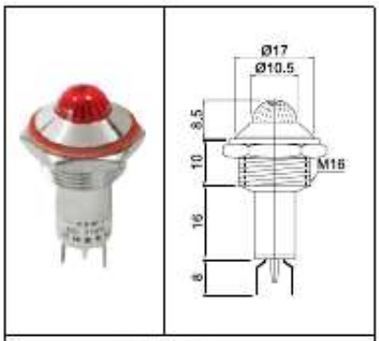
KLCRAU-16 D 24 Y



	High Brightness				
OFF	R	G		W	B
ON	R	G		W	B

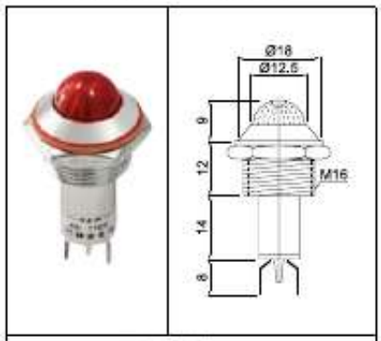
LED 인디케이터 LED INDICATOR

KLHRAU-16 D 24 R



High Brightness	R	G	Y	W	B
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHRANU-16 D 24 R



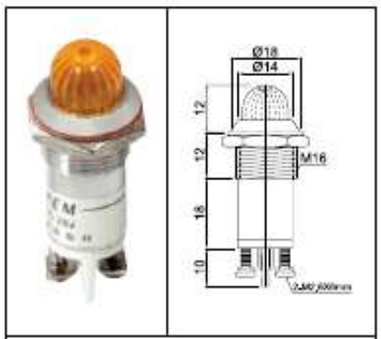
High Brightness	R	G	Y	W	B
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLRAU-16 D 24 R T



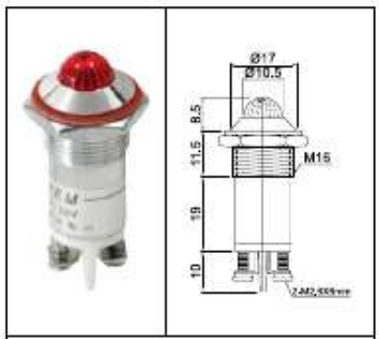
High Brightness	R	G		W	B
OFF	R	G		W	B
ON	R	G		W	B

KLCRAU-16 D 24 Y T



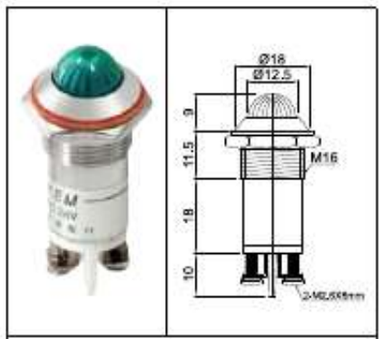
High Brightness	R	G	Y	W	B
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHRAU-16 D 24 R T



High Brightness	R	G	Y	W	B
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

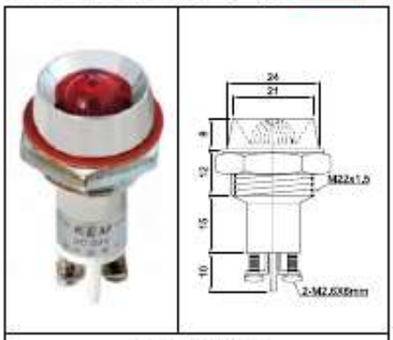
KLHRANU-16 D 24 G T



High Brightness	R	G		W	B
OFF	R	G		W	B
ON	R	G		W	B

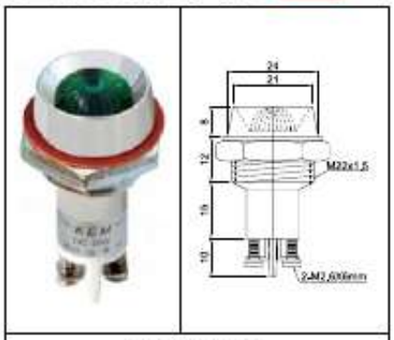
22Ø

KLRAU-22A 220 R T NEW



High Brightness	R	G	Y	W	B
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLRAU-22D 24 G T NEW

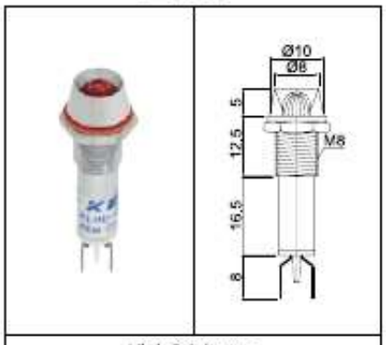


High Brightness	R	G		W	B
OFF	R	G		W	B
ON	R	G		W	B

LED 인디케이터 LED INDICATOR

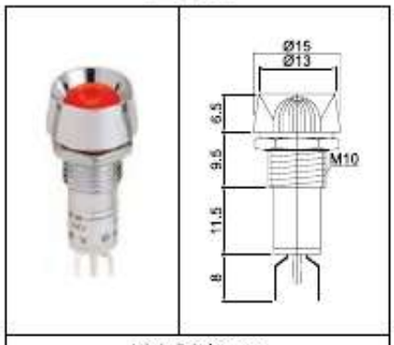
HD TYPE

KLHD-08 D24R



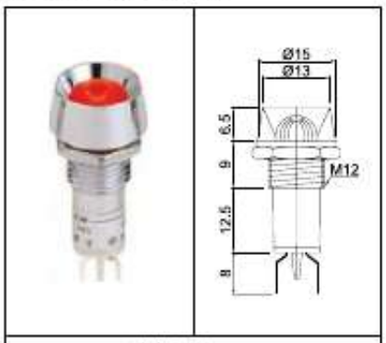
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHD-10 D24R



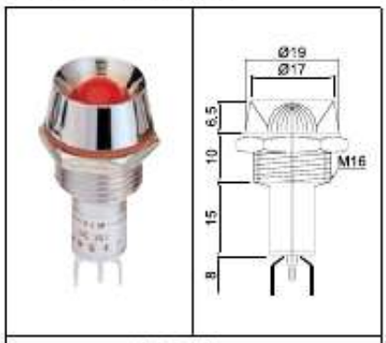
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHD-12 D24R



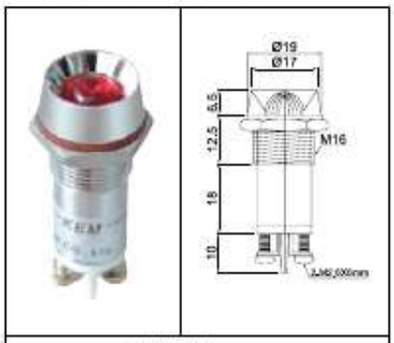
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHD-16 D24R



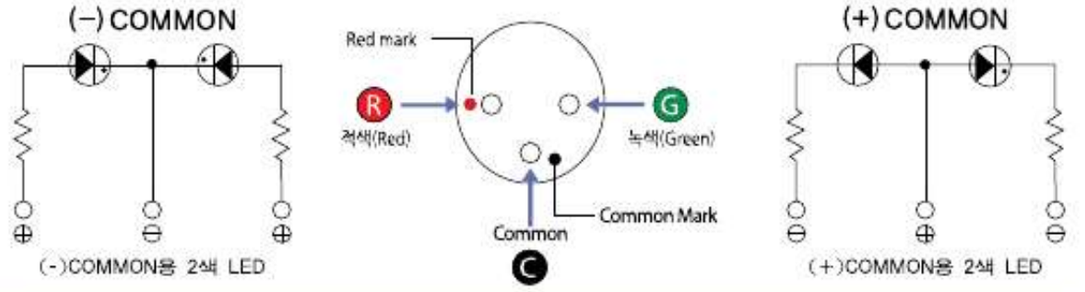
High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

KLHD-16 D24RT



High Brightness					
OFF	R	G	Y	W	B
ON	R	G	Y	W	B

2색, 3색 사양 / The specitical of the two, three color LED.



TWO COLOR LED	THREE COLOR LED
C + R 연결 = R	C + R 연결 = R
C + G 연결 = G	C + G 연결 = G
	C + R + G 연결 = Y

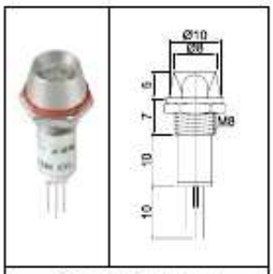
- 2색, 3색 LED는 ⊖ COMMON을 생산하고 있습니다.
- 주문에 의하여 ⊕ COMMON LED도 제작 가능합니다.

- The two color, three color LED produces ⊖ COMMON.
- It can be manugactured with ⊕ COMMON and 3colors (red, green and yellow) according to the customer order.

LED 인디케이터 LED INDICATOR

TWO & THREE COLOR TYPE

KL-08 D 24 이색



General Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KL-10 D 24 이색



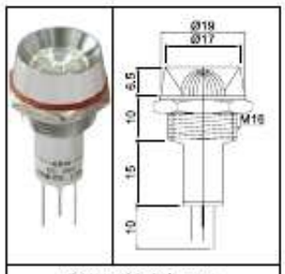
General Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KL-12 D 24 이색



General Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRA-16 D 24 삼색



General Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-08 D 24 이색



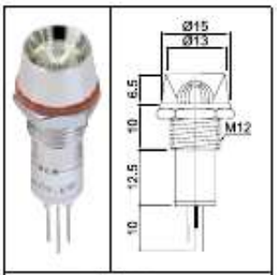
High Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-10 D 24 이색



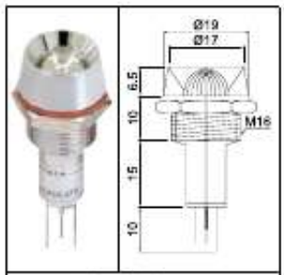
High Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-12 D 24 이색



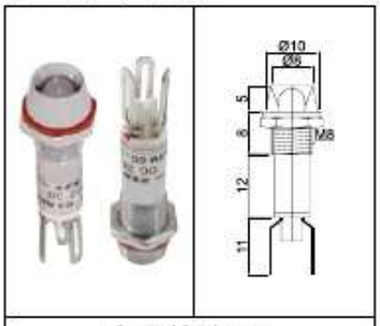
High Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-16 D 24 삼색



High Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KL-08 D 24 N 이색



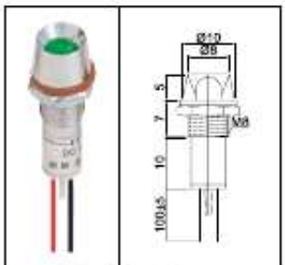
General Brightness		
OFF	○ 소등 시 투명, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

※ 고휘도 이색, 삼색 LED는 DC용만 제작 가능합니다.

LED 인디케이터 LED INDICATOR

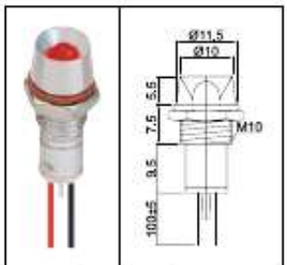
WIRE TYPE

KL-08 D 24 G L



General Brightness	
OFF	R G Y W
ON	R G Y W

KL-10 D 24 R L



General Brightness	
OFF	R G Y W
ON	R G Y W

KL-12 D 24 R L



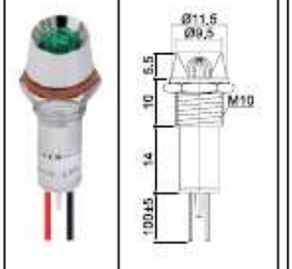
General Brightness	
OFF	R G Y W
ON	R G Y W

KLRAU-08 D 24 R L



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLRAU-10 D 24 G L



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLRAU-12 D 24 W L



High Brightness	
OFF	R G Y W B
ON	R G Y W B

KLRAU-16 D 24 R L



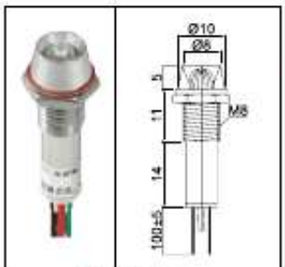
High Brightness	
OFF	R G Y W B
ON	R G Y W B

※ 주문에 의해 다른 모델도 제작 가능합니다.
※ 컬러 테이블의 원형 색상으로 점등되오니 제품 선정 시 참고하십시오.

※ Customizing to other products is possibly by order.
※ The circle color of the table is based on lighting.

TWO·THREE COLOR & WIRE TYPE

KLRAU-08 D 24 이색 L



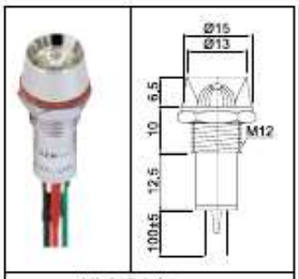
High Brightness		
OFF	○ 소등 시 무영, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-10 D 24 이색 L



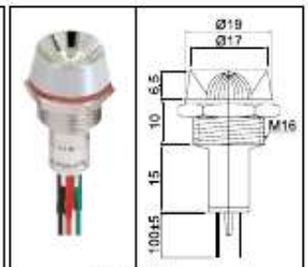
High Brightness		
OFF	○ 소등 시 무영, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-12 D 24 이색 L



High Brightness		
OFF	○ 소등 시 무영, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

KLRAU-16 D 24 삼색 L



High Brightness		
OFF	○ 소등 시 무영, 점등시 각 색상	
ON	이색/TWO R G	삼색/THREE R G Y

※ 고휘도 이색, 삼색 LED는 DC용만 제작 가능합니다.

N.F.B HANDLE
N.F.B 핸들



노 휴즈 브레카 핸들

N.F.B HANDLE

특 징

1. 가공은 전부 간단한 원형입니다.
2. 안전성을 높인 기능을 가지고 있습니다.
3. Door 인터록크 기능과 핸들록크 기능이 있습니다.
4. 핸들을 Door에 취부하는 구조로서 Door핸들과 병용이 가능합니다.

Characteristics

1. It's all processed simple round.
2. It's safety features have been improved.
3. There are the door interlock function and the handle lock function.
4. The handle is attached to the door and thus the door handle can still be used.

형 식

KNH-□

①

①	모델	100S	100A	SIEMENS TYPE
		400S	200A	
		A53C	ABS 53C	LS TYPE
		A103C	ABS 103C	
		A203C	ABS 203C	
		30CF	SA103C (3P 기본형)	FUJI TYPE
		40CF	SA203C (3P 기본형)	
		103W	BW125 (3P 기본형)	
		203W	BW250 (3P 기본형)	

Type

KNH-□

①

①	Model	100S	100A	SIEMENS TYPE
		400S	200A	
		A53C	ABS 53C	LS TYPE
		A103C	ABS 103C	
		A203C	ABS 203C	
		30CF	SA103C (3P Standard type)	FUJI TYPE
		40CF	SA203C (3P Standard type)	
		103W	BW125 (3P Standard type)	
		203W	BW250 (3P Standard type)	

KNH-100S **KNH-400S** **KNH-103W** **KNH-203W**

KNH-A53C **KNH-A103C** **KNH-A203C**

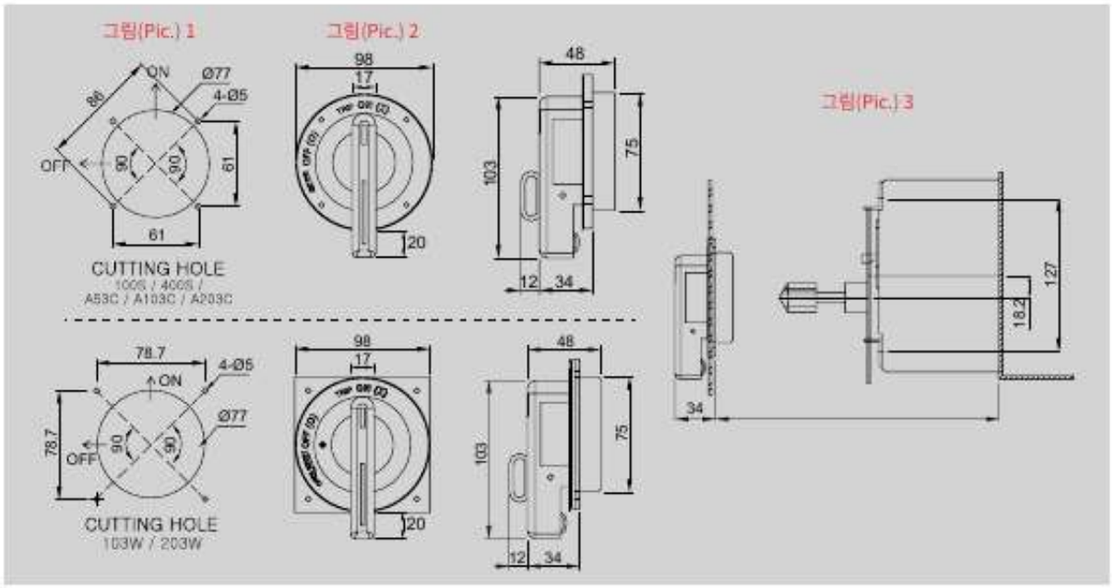
조작방법

1. 핸들 회전 시 NFB는 ON, OFF, RESET으로 조작됩니다.
2. 자동 차단이 될 경우에는 핸들이 TRIP를 지시합니다.
3. Door을 닫을 때는 NFB의 동작 상태에 핸들의 표시를 맞추어 닫아 주십시오.
4. ON상태로 문을 여는 경우에는 ⊖드라이버로 RELEASE 볼트를 회전시켜 주십시오.

Instruction

1. Use the ON, OFF or RESET key to operate NFB while rotating the handle.
2. In case of an automatic cut off, the handle informs a TRIP.
3. When you close the door, make sure that the displayof the handle corresponds with the NFB operation status.
4. When you try to open the door that's on, use the driver to rotate the RELEASE.

노 휴즈 브레카 핸들 N.F.B HANDLE

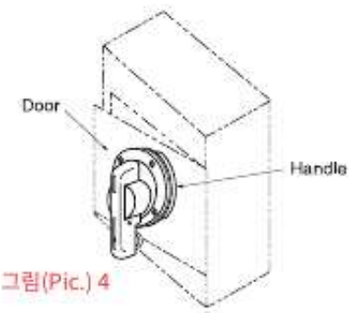


설 치

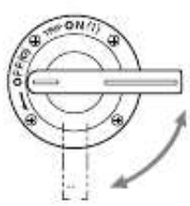
- 홀 커팅
- 취부대 설치
- 취부
- 조정

Installation

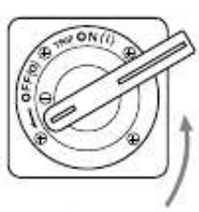
- Hole cutting
- Installation rest
- Installation
- Adjustment



그림(Pic.) 4



그림(Pic.) 5



그림(Pic.) 6

노 휴즈 브레카 핸들

N.F.B HANDLE

• Door 개폐

• 문을 닫은 경우

1. NFB를 OFF로 하십시오.
2. 핸들 손잡이를 OFF 위치에서 Door를 닫으십시오.

• 문을 열 경우

1. 핸들 손잡이를 C 위치로 하여 Door를 열어주십시오. (그림 7)

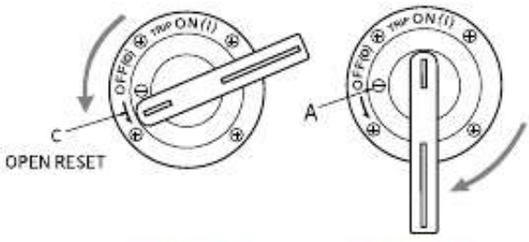
• Opening and closing the door

• When the door is close

1. Have the NFB OFF.
2. Close the door with the handle located at OFF.

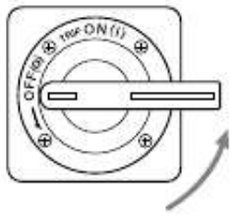
• When the door is open

1. Move the handle to the location of C and open the door. (Pic.7)

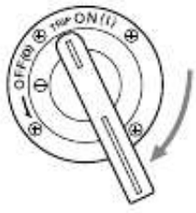


그림(Pic.) 7

그림(Pic.) 8



그림(Pic.) 9



그림(Pic.) 10



그림(Pic.) 11

• 조작방법

• 문을 닫은 상태에서 NFB 조작

1. 핸들을 수직위치로 하면 NFB는 ON이 됩니다. (그림 8)
2. 핸들을 수평위치로 하면 NFB는 OFF가 됩니다. (그림9)
3. NFB가 자동차단되는 경우는 TRIP 위치에 핸들이 놓입니다. (그림 10)

• 도어 록크를 해제하는 방법

1. NFB가 ON, OFF, TRIP 상태에서는 Door를 열 수 없습니다.
2. NFB가 OFF, TRIP 상태에서 Reset 위치로 회전 시키면 록크가 해제 됩니다.
3. NFB가 ON 상태에서 Door를 열고자 할때는 RELEASE를 시계 반대 방향으로 회전시키면 록크가 해제 됩니다 (그림 7)

• Instruction

• NFB with the door closed

1. When you put the handle in a perpendicular position, the NFB turns ON. (Pic. 8)
2. When you put the handle in a horizontal position, the NFB turns OFF. (Pic. 9)
3. In case the NFB is cut off automatically, the handle is placed in the TRIP position. (Pic. 10)

• How to release the door lock

1. You cannot open the door with the NFB ON, OFF or TRIP.
2. The lock will be released when you rotate the NFB that's in the status of OFF or TRIP in the Reset direction.
3. When you try to open the door with the NFB ON, you need to rotate the RELEASE counterclockwise. Then the lock will be released. (Pic. 7)

• 핸들 록크 기능

- 자물쇠로 핸들을 OFF 상태로 록크 할 수가 있습니다.
- 자물쇠의 굵기는 3~8mm로 하십시오. (그림 11)

• Handle lock

- Using the lock, you can fasten the handle that's OFF.
- The lock should be within 3~8mm. (Pic. 11)

안전을 위한 주의 사항 / Attention list for safety

경 고

통전 중 록크 해제 시에는 감전에 특별히 주의를 요합니다.

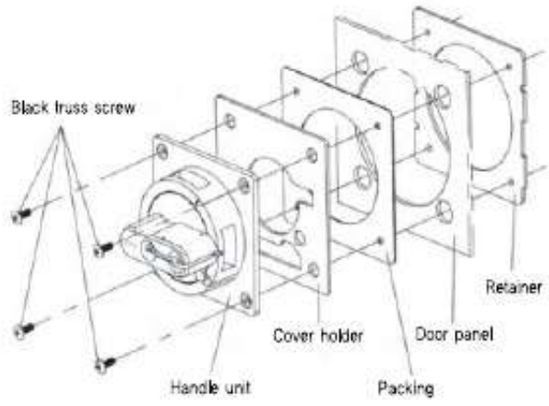
Warning

Take extra caution not to receive electric shock when unlocking it while the electricity is on.

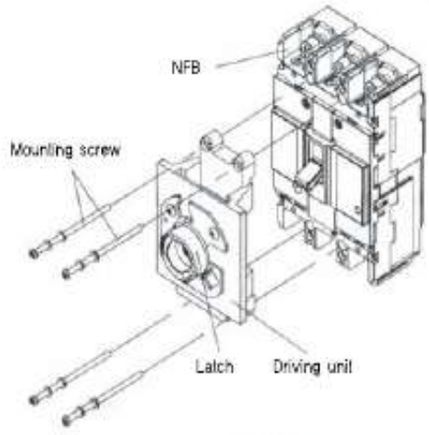
노 휴즈 브레카 핸들

N.F.B HANDLE

KNH-30CF **KNH-40CF**



그림(Pic.) 1

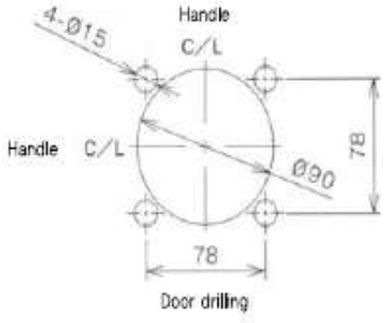


그림(Pic.) 2

• 설치 요령

• 홀 커팅

핸들의 형식에 관계없이 도어 홀 가공 치수는 동일 합니다.
(그림 3)을 따라서 정확한 홀을 가공하십시오.



그림(Pic.) 3

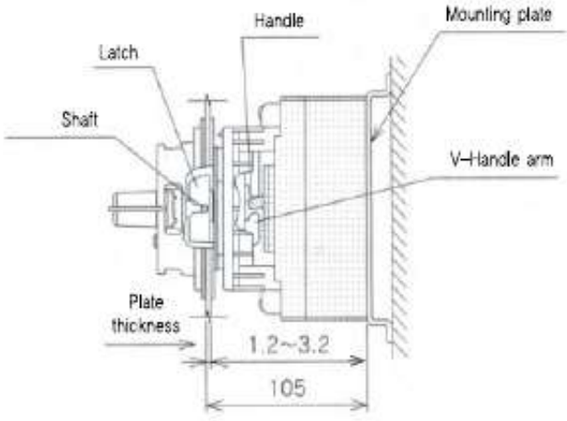
• 취부대 설치

도어 외측으로부터 NFB 설치하는 면까지 (그림4)의 치수가
되도록 설치대를 제작하여 주십시오.

• Installation Procedure

• Hole cutting

The hole drilling size is identical regardless of the handle type.
Make accurate drilling using (Pic. 3).



그림(Pic.) 4

• Installation rest

Build up the NFB mounting plate so that the distance from the outside of the door to the NFB mounting surface is that indicated in (Pic. 4).

노 휴즈 브레카 핸들

N.F.B HANDLE

• 드라이브 유니트 설치

NFB를 OFF 상태에서 하여 주십시오.
NFB의 손잡이와 V 핸들 팔이 맞물리게 결합하여 주십시오.

• 핸들 유니트 설치

핸들 유니트, 커버 홀더, 바킹, 고정시키는 판넬을 도어에 끼워서 임시로 조여 주십시오.

핸들 유니트는 NFB에 대해서 비틀림이 없도록 조절해 주십시오. (그림 5)

핸들 유니트를 OFF 상태에서 도어를 닫아 주십시오. 샤프트 런치가 도어를 닫은 상태에서 맞물려 있는지 확인해 주십시오. (그림 4)

• Mounting the driving unit

Set the NFB in the OFF position.
Assemble the driving unit so that the NFB handle engages the V handle arm.

• Mounting the handle unit

Insert the handle unit, cover holder, packing, and retaining panel into door and tighten temporarily.

Adjust the position of the handle unit so that it does not tilt against the NFB. (Pic. 5)

Put the handle of the handle unit at OFF position and close the door. Check that the shaft engages the latch when the door closes. (Pic. 4)



그림(Pic.) 5



그림(Pic.) 6

1. ON-OFF 조작의 확인

핸들을 ON-OFF 조작 시 NFB가 ON-OFF 되는지 확인해 주십시오. 작동되지 않을 경우 핸들 유니트를 도어 판넬 위에서 상하 좌우로 조금씩 움직여보고, 맞물리게 하여 주십시오.

핸들을 ON상태에서 핸들을 좌우로 흔들어도 자동복귀하는 위치가 최적의 위치 입니다. (그림 6)

1. Checking ON-OFF operation

Set the handle In the ON and OFF position to make sure that NFB is turned on and off. If it falls, alide the handle unit vertically and horizontally on the door panel to make the shaft engage the latch.
In the optimum handle unit position, when the handle at ON position the handle is automatically returned to the ON position even if the handle unit is shaken horizontally. (Pic . 6)

2. 설치후, 도어가 완전히 닫히지 않을 경우

도어 표면은 NFB의 설치면의 치수(105)가 표면 치수에 대해서 짧기 때문에 표면치수까지 깊숙히 넣어 주십시오.

2. The door can not be closed completely after the handle is mounted.

Put the door surgace deeply to reference distance due to the NFB mounting surface (105) being less than the reference distance.

3. 도어 닫은후, 도어 잠김이 되지 않을 경우

도어표면의 NFB의 설치면의 치수(105)가 표면에 비해서 깊기 때문에 표면치수까지 짧게 하여 주십시오.
도어가 잠겼는지 확인 후 핸들 유니트 고정 나사를 늘려서 조여 주십시오.

3. After the door is closed, the door cannot be locked.

Make thin to the reference distance due to the NFB mounting surface(105) being larger thand the reference distance.
After making sure that the door can be locked, tighten the screws to secure the handle unit.

노 휴즈 브레카 핸들

N.F.B HANDLE

조작방법

1. 도어 닫은 상태에서 NFB 조작 방법

- 핸들을 수직 위치로 하면 NFB는 ON 됩니다. (그림 7)
- 핸들을 수평 위치로 하면 NFB는 OFF 됩니다. (그림 8)
- NFB가 자동 차단되는 경우 핸들이 TRIP 위치를 지시하게 됩니다. (그림 9)
- 핸들을 RESET 방향으로 회전시키면 NFB는 리셋됩니다. (그림 10)

2. 도어잠김의 해제 방법

- NFB가 ON-OFF-TRIP 상태에서는 도어를 열 수 없습니다.
- 핸들을 OPEN 위치로 회전하면 잠금장치가 해제됩니다.
- NFB를 ON 상태로 도어를 열때는RELEASE 볼트를 시계 방향으로 회전하면 잠금장치가 해제됩니다. (그림 11)

Instruction

1. NFB with the door closed

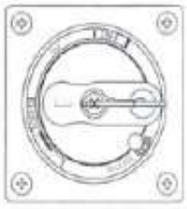
- When you put the handle in a perpendicular position, the NFB turns ON. (Pic. 7)
- When you put the handle in a horizontal position, the NFB turns OFF. (Pic. 8)
- In case the NFB is cut off automatically, the handle is placed in the TRIP position. (Pic. 9)
- If the handle is turned in the direction of RESET, NFB is reset. (Pic. 10)

2. Door lock and release

- You cannot open the door with the NFB ON, OFF or TRIP.
- The door is released by turning the handle to open.
- To open the door while NFB is ON, turn the release screw clockwise to the door. (Pic. 11)



그림(Pic.) 7



그림(Pic.) 8



그림(Pic.) 9



그림(Pic.) 10



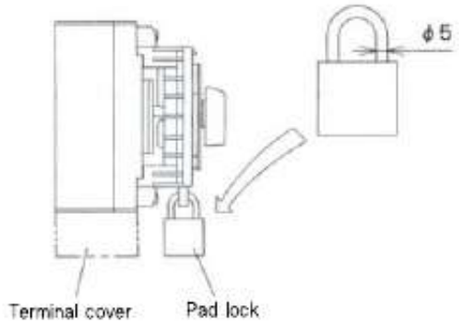
그림(Pic.) 11

• 핸들 록크

- 자물쇠는 핸들이 OFF 상태일 때 록크 할 수가 있습니다.
- 자물쇠의 굵기는 3~8mm로 하십시오.(그림 12)

• Handle lock

- Using the lock, you can fasten the handle OFF.
- The lock should be within 3~8mm (Pic. 12)

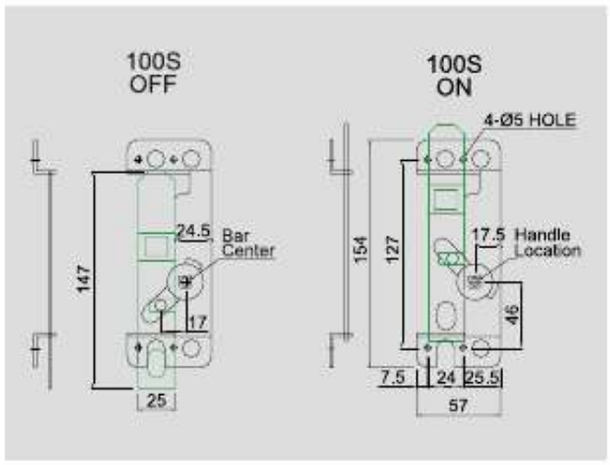


그림(Pic.) 12

노 휴즈 브레카 핸들 N.F.B HANDLE

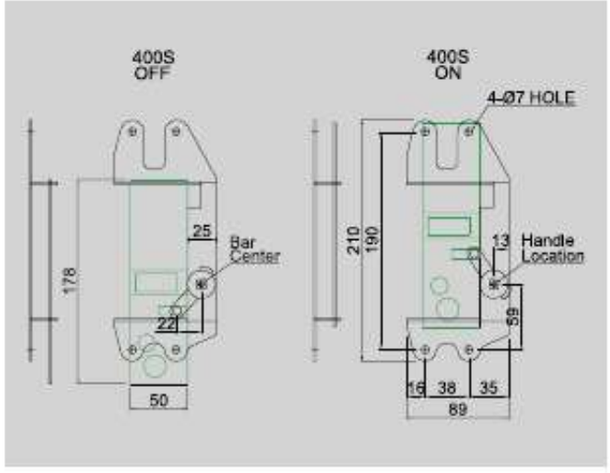
KNH-100S





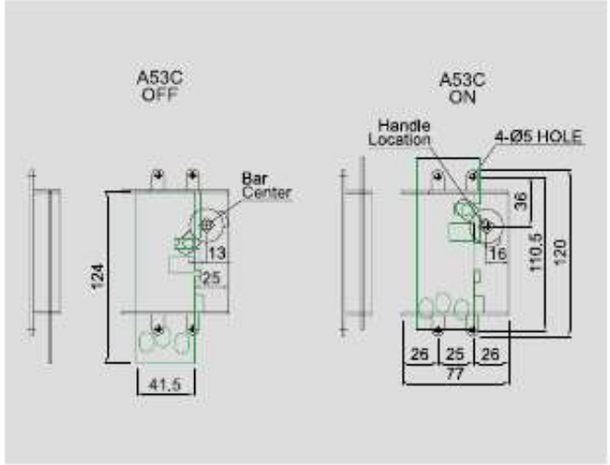
KNH-400S





KNH-A53C

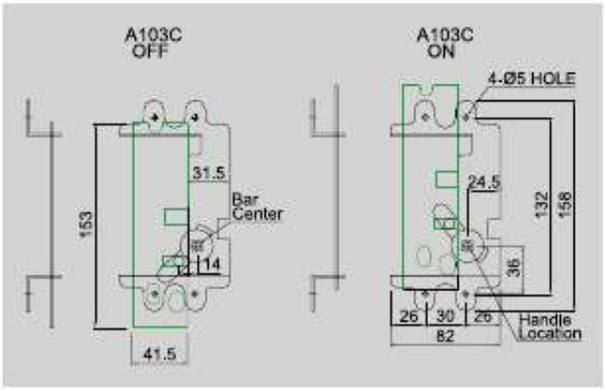




노 휴즈 브레카 핸들 N.F.B HANDLE

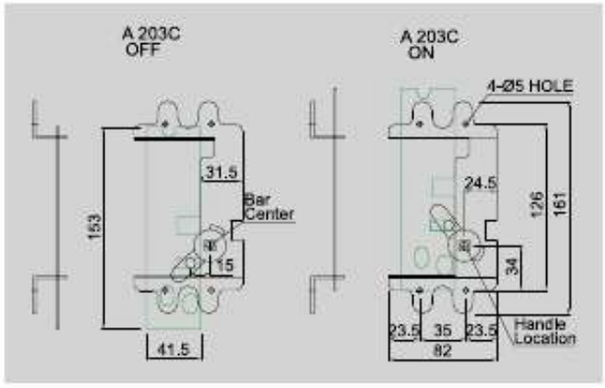
KNH-A103C





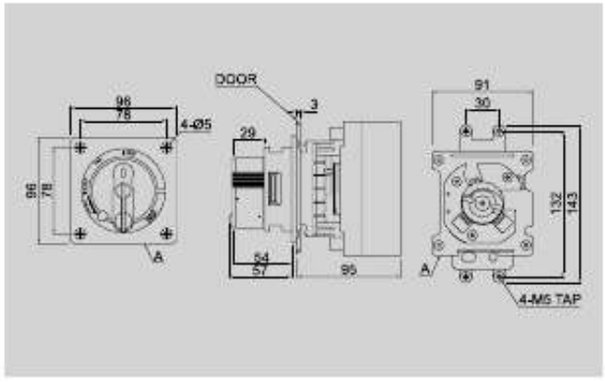
KNH-A203C





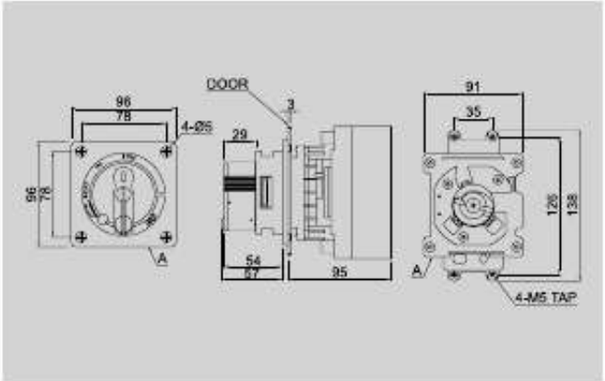
KNH-30CF





KNH-40CF



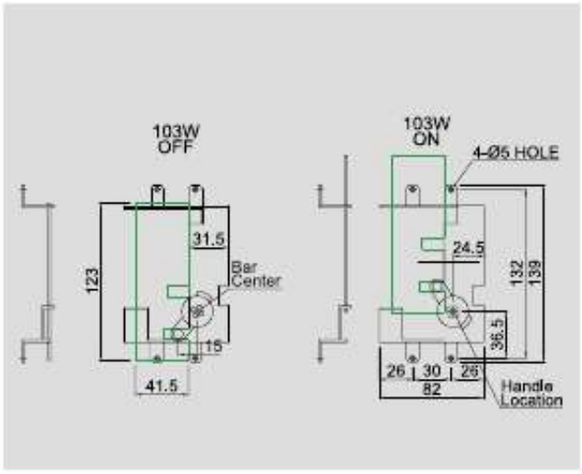


노 휴즈 브레카 핸들 N.F.B HANDLE

KNH-103 W



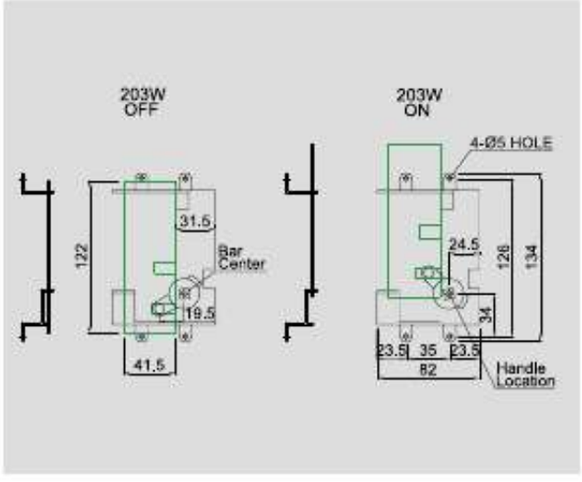




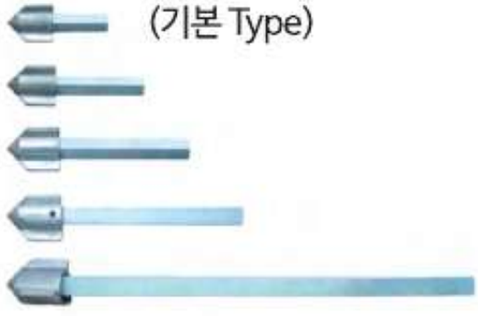
KNH-203W

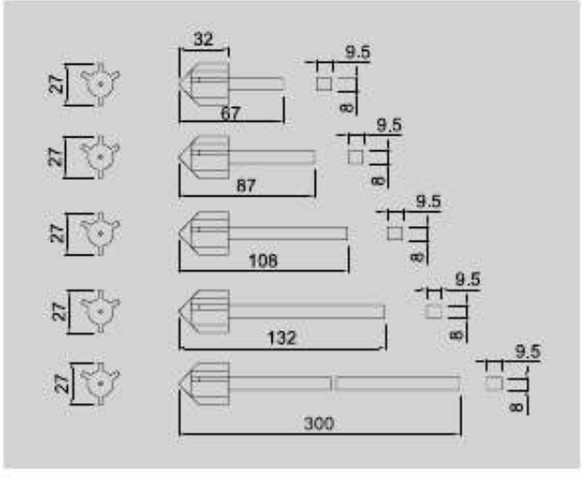






핸들 샤프트
HANDLE SHAFT

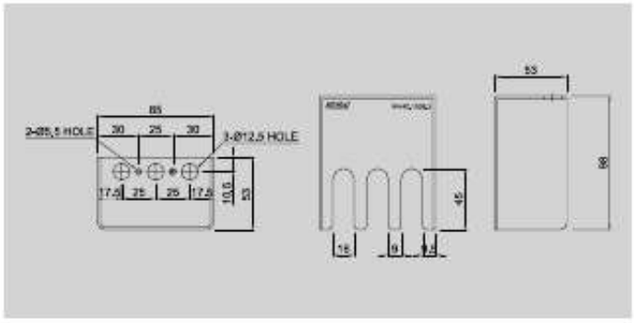




노 휴즈 브레카 핸들 N.F.B HANDLE

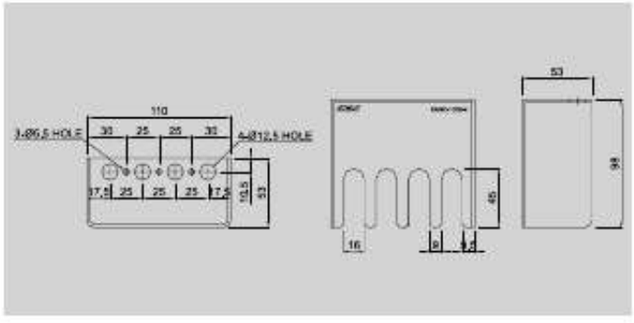
KNHC-100S-3





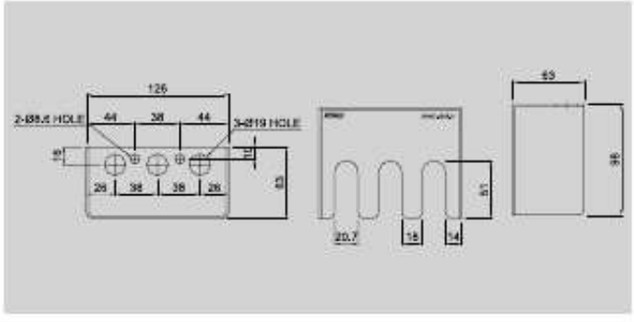
KNHC-100S-4





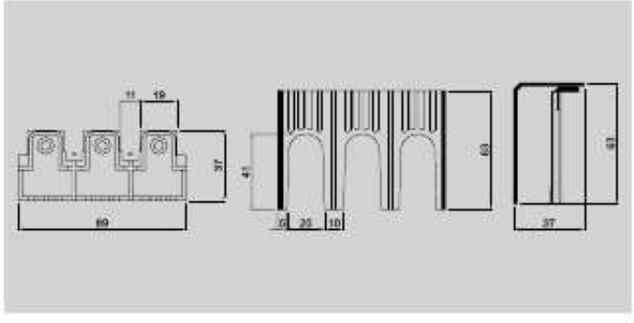
KNHC-400S-3





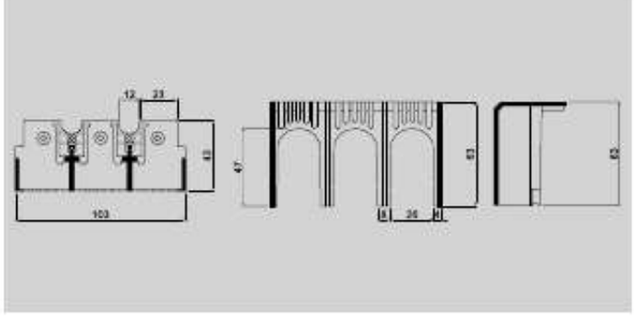
KNH-103WC





KNH-203WC





CE

CABLE GLAND
케이블 그랜드



케이블 그랜드

특 징

1. 피치규격 : PG

2. 작업 온도 :
고정상태에서 -40℃~100℃
움직이는 상태에서 -20℃~80℃
순간내열100℃

3. 특징
진동기계에 적용되는 다이클램핑 씰링너트,
케이블을 조이는 범위가 넓음.
방수, 먼지, 염분, 산화, 알칼리 등의
일반 용매를 막는 효과가 있습니다.

4. 보호 등급 : IP68

CABLE GLAND

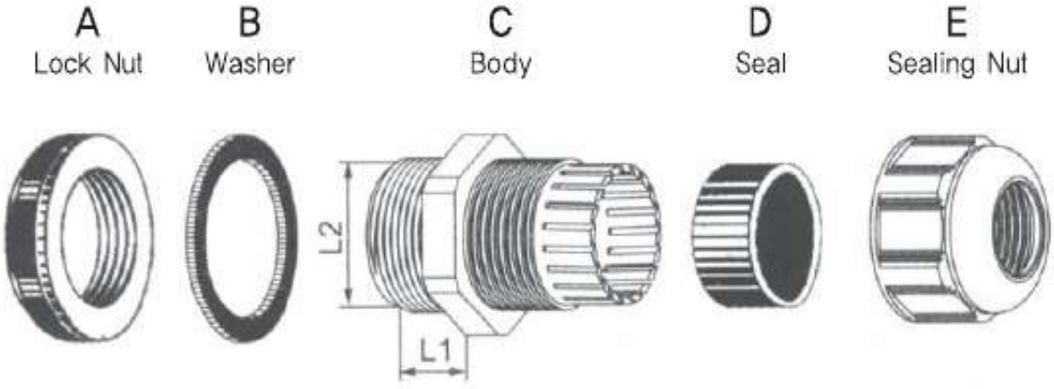
Characteristics

1. Standard Pitch : PG

2. Working temperature
In static -40℃~100℃
In dynamic state -20℃~80℃
Instantaneous heat resistance up to 100℃

3. Charateristic
Die clamping Sealing nut applicable for vibrating machine.
Large range in clamping the cable, High ability to resist waterproof dustproof, and salt, acid, alkali and general solvent.

4. Protection degree : IP68



케이블 그랜드 CABLE GLAND

SELF-LOCKING C TYPE



제품 Model	제품 규격 Thread Size	전선 구경 Cable Range(mm)	피치 외경 Thread O.D. L2(mm)	피치 길이 Thread Length L1(mm)	피치 Pitch L1(mm)	스패너 치수 Spanner Size A&E(mm)	수량 Q'ty
KPG-7C	PG-7	4~6.5	12.5	9	1.27	19/16	100
KPG-9C	PG-9	4.5~8.5	15.2	9	1.41	22/19	100
KPG-11C	PG-11	5~10	18.6	9	1.41	24/22	100
KPG-13.5C	PG-13.5	6~11	20.4	10	1.41	26/24	100
KPG-16C	PG-16	8~13	22.5	10	1.41	30/27	100
KPG-21C	PG-21	13~18	28.3	12	1.588	36/33	20
KPG-29C	PG-29	18~25	37	12	1.588	46/42	20

1. 재 질 : 나일론 PA66
2. 제품 색상 : 연회색

1. Material : Nylon PA66
2. Color : Light gray

SELF-LOCKING S TYPE



제품 Model	제품 규격 Thread Size	전선 구경 Cable Range(mm)	피치 외경 Thread O.D. L2(mm)	피치 길이 Thread Length L1(mm)	피치 Pitch L1(mm)	스패너 치수 Spanner Size A&E(mm)	수량 Q'ty
KPG-7S	PG-7	3~6.5	12.5	11	1.27	19/15	100
KPG-9S	PG-9	4~8	15	11	1.41	22/19	100
KPG-11S	PG-11	5~10	18.5	12	1.41	24/22	100
KPG-13.5S	PG-13.5	6~12	20.5	13	1.41	26/24	100
KPG-16S	PG-16	8~13	22.5	13	1.41	30/27	100
KPG-21S	PG-21	13~18	28	16	1.588	35/33	100
KPG-29S	PG-29	18~25	37	16	1.588	46/42	50
KPG-36S	PG-36	22~32	47	17	1.588	56/53	20

1. 재 질 : 나일론 PA66 (UL 인증)
6. 제품 색상 : 기본 - 회색
주문 - 검정 가능

1. Material : Nylon PA66 (approved by UL)
6. Color : STANDARD - Gray
ORDERING - Black

케이블 그랜드 CABLE GLAND

METAL TYPE



제품 Model	제품 규격 Thread Size	전선 구경 Cable Range(mm)	피치 외경 Thread O.D. L2(mm)	피치 길이 Thread Length L1(mm)	피치 Pitch L1(mm)	스패너 치수 Spanner Size A&E(mm)	수량 Q'ty
KPG-7MA	PG-7	4~7	12.5	6	1.27	14	100
KPG-9MA	PG-9	5~8	15.2	7	1.41	18	100
KPG-11MA	PG-11	6~10	18.6	8	1.41	20	100
KPG-13.5MA	PG-13.5	6~12	20.4	9	1.41	22	100
KPG-16MA	PG-16	7~14	22.5	9	1.41	24	100
KPG-21MA	PG-21	13~18	28.3	9	1.588	30	20
KPG-29MA	PG-29	14~24	37	10	1.588	40	20

1. 재 질 : 동·니켈도금
2. 제품 색상 : 실버

1. Material : Brass plated with nickel
2. Color : Silver

FAN COVER
팬 커버











팬 커버

특 징

1. 빗살무늬 사출물 케이스로 제작되어 있어 외관이 미려하고 가볍습니다.
2. 필터는 재생 가능하므로 중성세제 및 압축공기에 털어서 여러번 사용이 가능합니다.
3. 주변 사용온도는 -10℃~+70℃이며 악조건에서도 사용 가능합니다.
4. 케이스와 필터 간격이 닥트 구조로써 미세한 먼지까지도 넓게 흡수 가능합니다.

필터 재생 방법

오래된 필터는 기름 먼지가 많으므로 중성세제를 미지근한 물에 95:5의 비율로 10분 정도 담궈 씻은 다음 자연건조해 사용 하시면 됩니다.

사용 조건

1. 필터는 정기적으로 청소하여야 하며 너무 오염이 심할 경우는 교체하여 사용하는것이 좋습니다.
2. 실내는 오염되지 않도록 가능한 주위환경을 청결하게 유지 하여 사용하여야 합니다.

형 식

KFC - □□ □ - □

① ② ③

①	크기	90	미니
		120	소
		M120	소(sus filter)
		150	중
		200	대
		250	대(XL)
②	형식	무	기본형
		S	슬림형
③	옵션	무	빗살형
		1	원형
		M	메탈

* 난연 ABS(LG AF365-18061)

FAN COVER

Characteristics

1. This product is made into injection molding case with comb patten therefore external is refined and light.
2. Filter can be reused several times after it is shaken off in a neutral detergent or compressed air.
3. The surrounding temperature while in use -10℃~+70℃, which includes extreme conditions.
4. The duct structure is designed between the case and the filter, allowing for the wide absorption of fine dust.

Method of reusing filter

Old filter filled with oily dusts, therefore it should be put in lukewarm water for 10minutes with a neutral detergent by 95:5 ratio. Then wash in water and natural dry before use.

Conditions of use

1. The filter must be cleaned regularly and replaced with a new one when the pollution of filter is serious.
2. You need to maintain the surrounding environment as clean as possible to prevent the inside from being polluted.

Type

KFC - □□ □ - □

① ② ③

①	Size	90	Mini
		120	Small
		M120	Small(sus filter)
		150	Medium
		200	Large
		250	X-Large
②	Type	None	Standard type
		S	Slim type
③	Option	None	Comb pattern
		1	Round pattern
		M	Metal

* Flame Retardant ABS(LG AF365-18061)

KFC-120과 KFC-120S의 차이 (KFC-120 and KFC-120S differences)



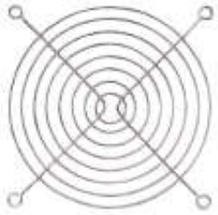
KFC-120

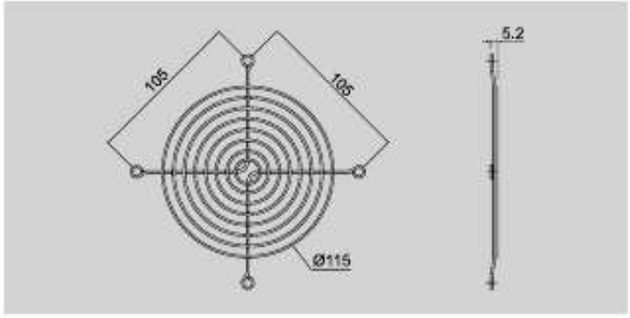


KFC-120S

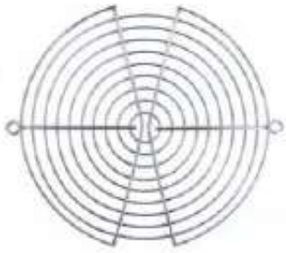
팬 커버 FAN COVER

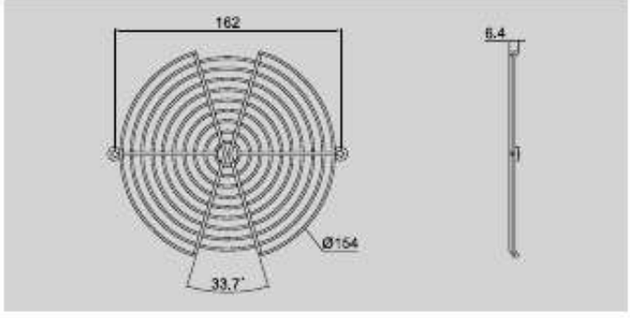
KFC-120-M





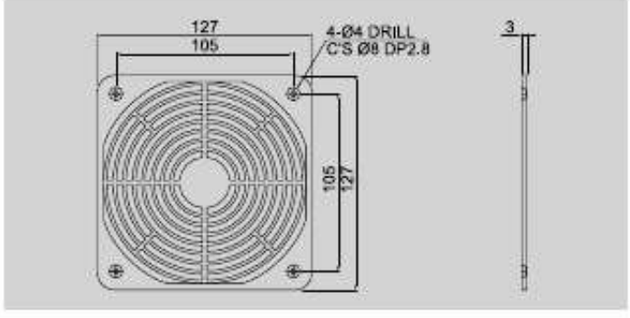
KFC-150-M





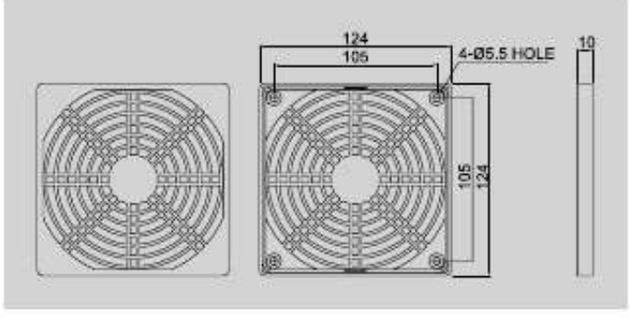
KFC-120-1





KFC-120-2





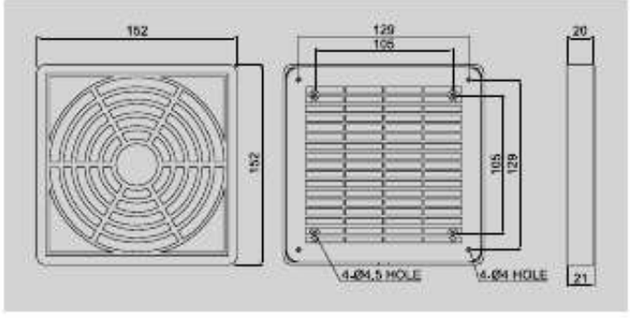
KFC-150-1



아이보리(Ivory)



블랙(Black)

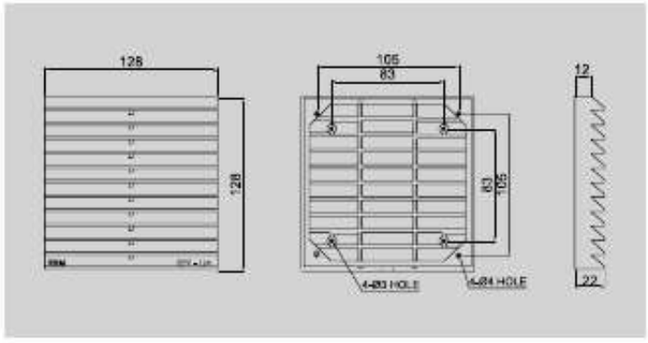


팬 커버 FAN COVER

KFC-120

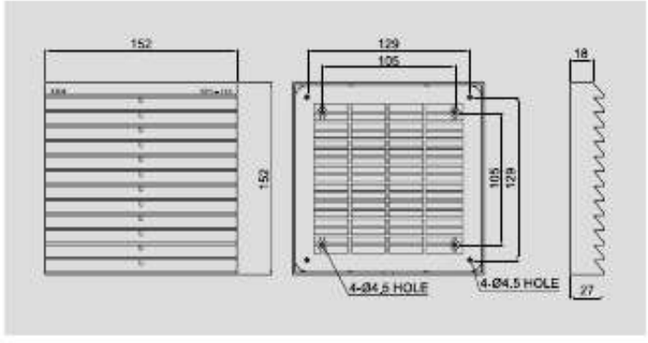


아이보리(Ivory) 블랙(Black)



KFC-150

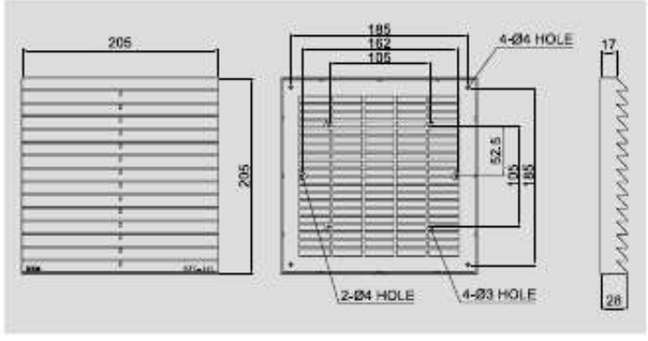




KFC-200

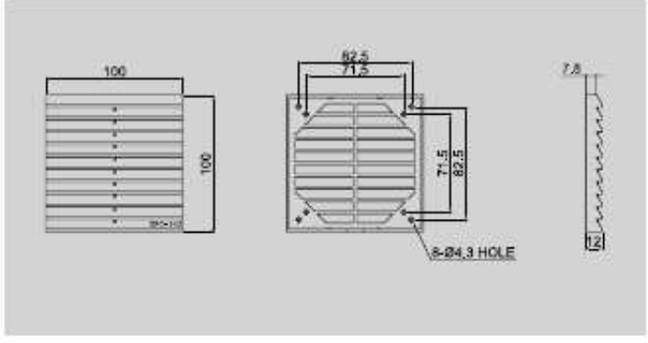


※ 상단제품 블랙색상은 주문제작 가능합니다



KFC-90S



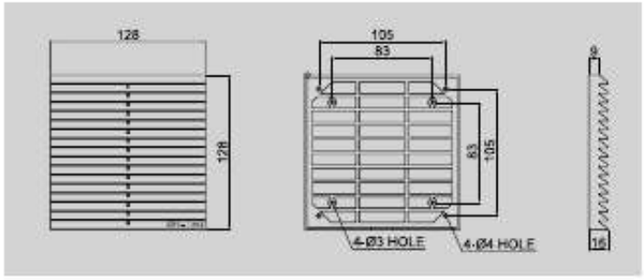


팬 커버 FAN COVER

KFC-120S



아이보리(Ivory) 블랙(Black)

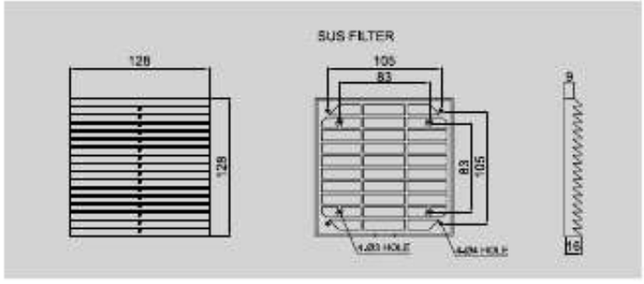


KFC-M120S



SUS-Filter

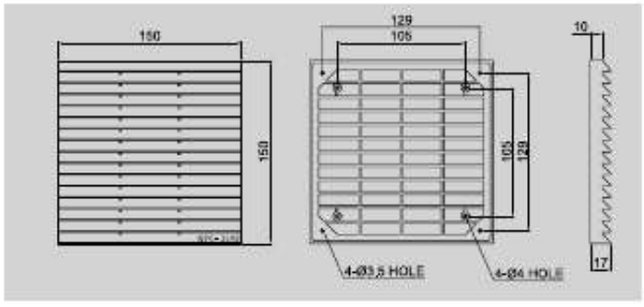
※M120S는 난연 SUS-Filter입니다



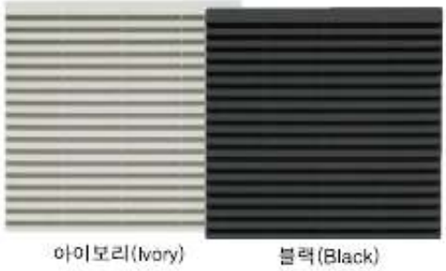
KFC-150S



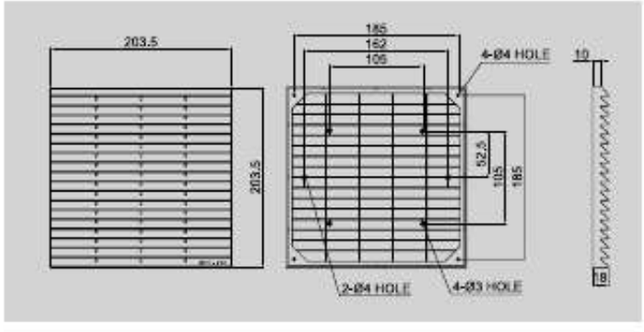
아이보리(Ivory) 블랙(Black)



KFC-200S



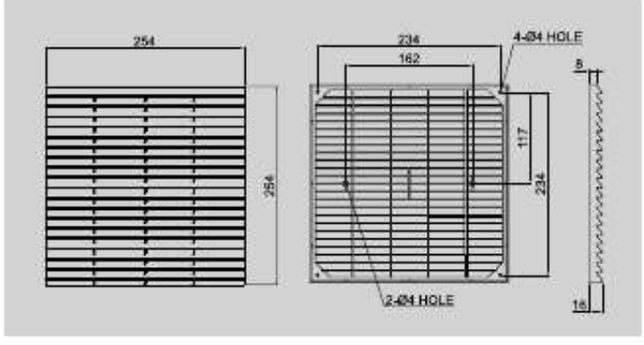
아이보리(Ivory) 블랙(Black)



KFC-250S



※ 상단제품 블랙색상은 주문제작 가능합니다



팬 커버(씰링형)

특 징

1. 빗살무늬 사출물 케이스로 제작되어 있어 외관이 미려하고 가볍습니다.
2. 필터는 재생 가능하므로 중성세제 및 압축공기에 털어서 여러번 사용이 가능합니다.
3. 주변 사용온도는 -10℃~+70℃이며 악조건에서도 사용 가능합니다.
4. 케이스와 필터 간격이 닥트 구조로써 미세한 먼지까지도 넓게 흡수 가능합니다.

필터 재생 방법

오래된 필터는 기름 먼지가 많으므로 중성세제를 미지근한 물에 95:5의 비율로 10분 정도 담궈 씻은 다음 자연건조해 사용 하시면 됩니다.

사용 조건

1. 필터는 정기적으로 청소하여야 하며 너무 오염이 심할 경우는 교체하여 사용하는것이 좋습니다.
2. 실내는 오염되지 않도록 가능한 주위환경을 청결하게 유지 하여 사용하여야 합니다.

형 식

FC - ① ②

①	크기	120	소
		150	중
		200	대
		320	대(XL)
②	형식	W	FAN COVER
		WM	팬부착형

* 난연 ABS(D-1200)

FAN COVER (SEALING TYPE)

Characteristics

1. This product is made into injection molding case with comb patten therefore external is refined and light.
2. Filter can be reused several times after it is shaken off in a neutral detergent or compressed air.
3. The surrounding temperature while in use -10℃~+70℃, which includes extreme conditions.
4. The duct structure is designed between the case and the filter, allowing for the wide absorption of fine dust.

Method of reusing filter

Old filter filled with oily dusts, therefore it should be put in lukewarm water for 10minutes with a neutral detergentby 95:5 ratio. Then wash in water and natural dry before use.

Conditions of use

1. The filter must be cleaned regularly and replaced with a new one when the pollution of filter is serious.
2. You need to maintain the surrounding environment as clean as possible to prevent the inside from being polluted.

Type

FC - ① ②

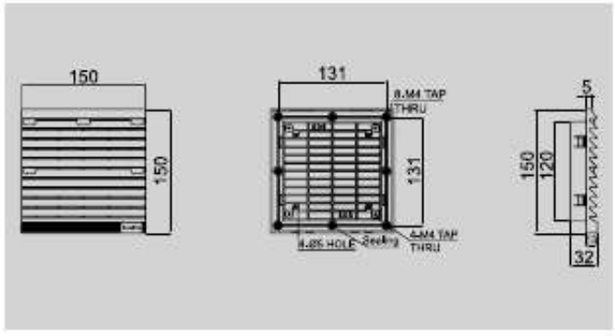
①	Size	120	Small
		150	Medium
		200	Large
		320	X-Large
②	Type	W	FAN COVER
		WM	팬부착형

* Flame Retardant ABS(D-1200)

팬 커버(씰링형) FAN COVER(SEALING TYPE)

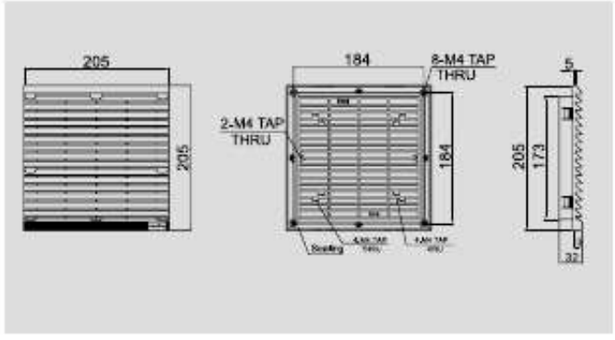
FC-120W





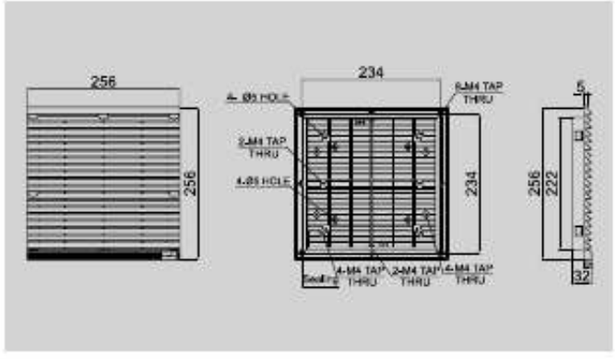
FC-150W





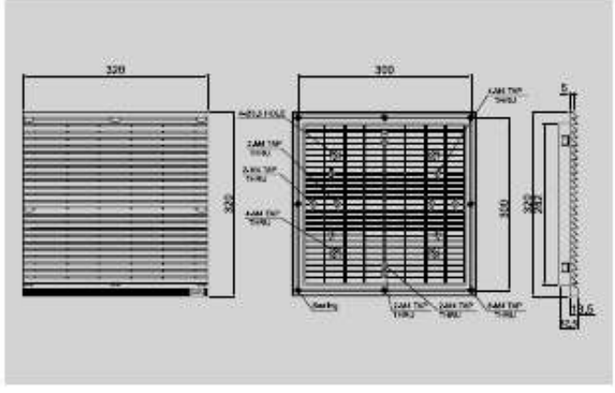
FC-200W





FC-320W

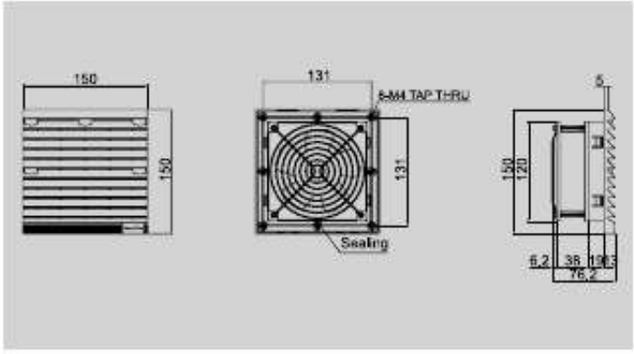




팬 커버(씰링형) FAN COVER(SEALING TYPE)

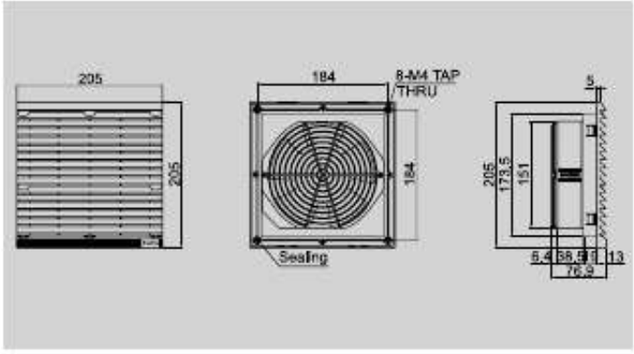
FC-120WM





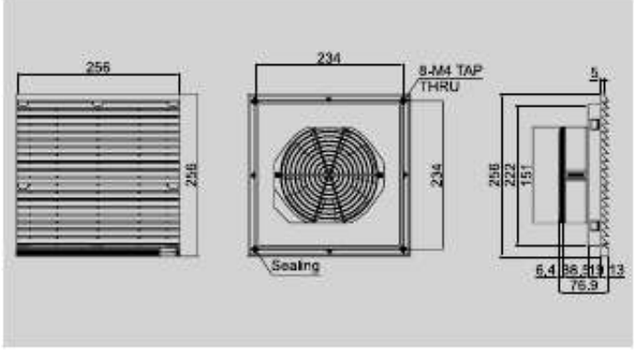
FC-150WM



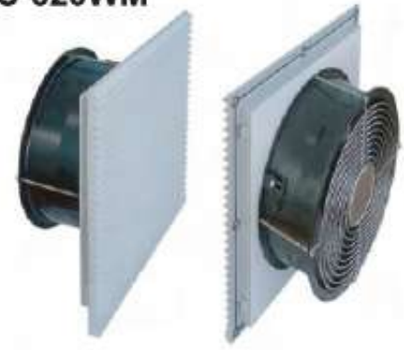


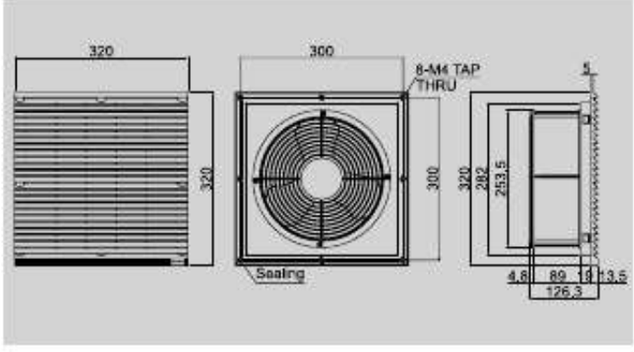
FC-200WM





FC-320WM





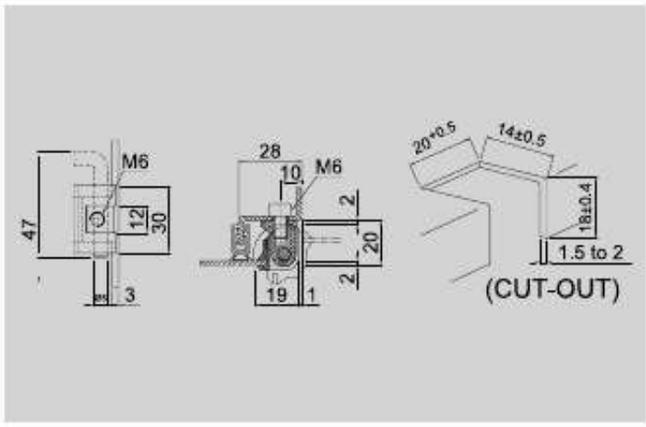
HINGE / LOCKER / KEY
힌지·록커·키



힌지 HINGE

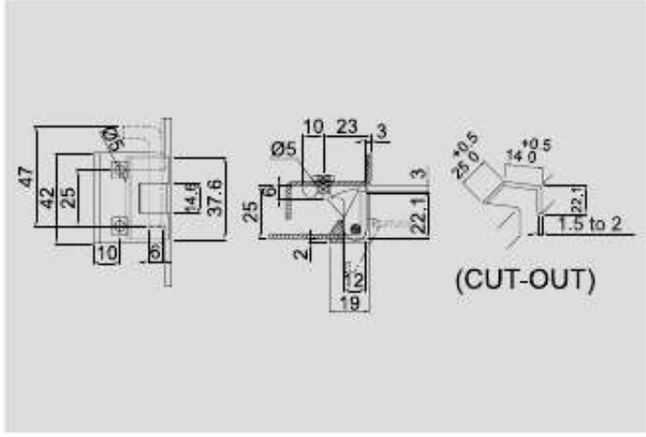
R70202 ※R70077





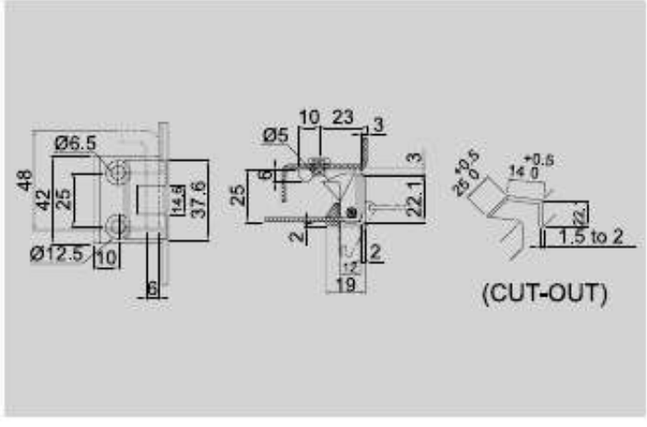
R70089 ※R70203





R70105 ※R70204





• 재질 : 아연(ZNDC2) • 표면처리 : 크롬도금(CR) / 흑색도장 • Material : Zinc(ZNDC2) • Finish : Chromium plating / Black painting

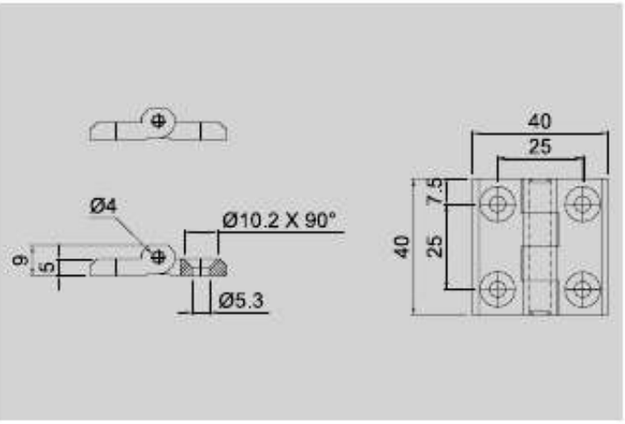
• 힌지 조립 후 180도 이상 열게 될 경우 제품에 이상이 발생될 수 있습니다.

• If you open the hinge more than 180 degrees after assembling the hinge, the product may malfunction.

힌지 HINGE

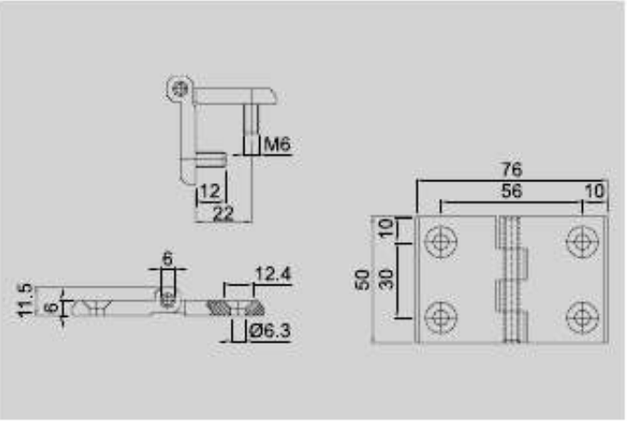
R70100 ※R70205





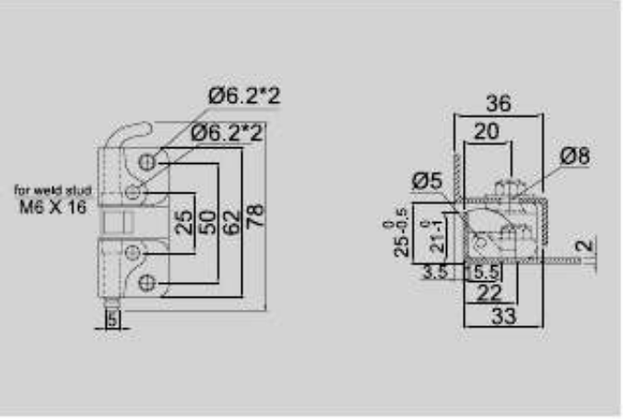
R70119





R70207





• 재질 : 아연(ZNDC2) • 표면처리 : 크롬도금(CR) / 흑색도장 • Material : Zinc(ZNDC2) • Finish : Chromium plating / Black painting

• 힌지 조립 후 180도 이상 열게 될 경우 제품에 이상이 발생될 수 있습니다.

• If you open the hinge more than 180 degrees after assembling the hinge, the product may malfunction.

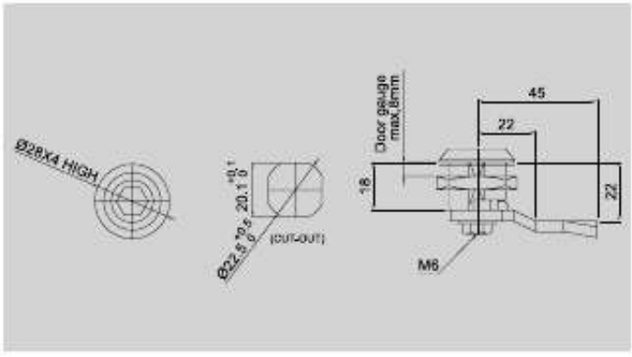
록커 LOCKER

R70081



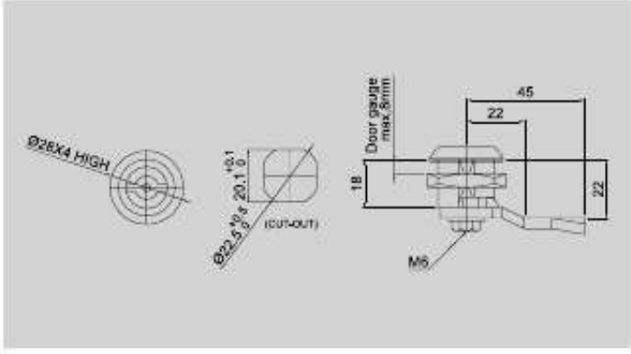
※ R70193





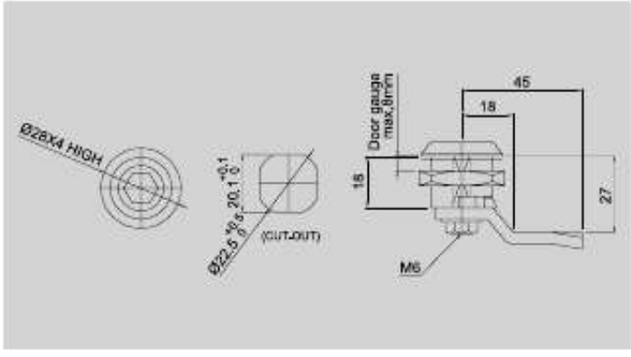
R70081-1





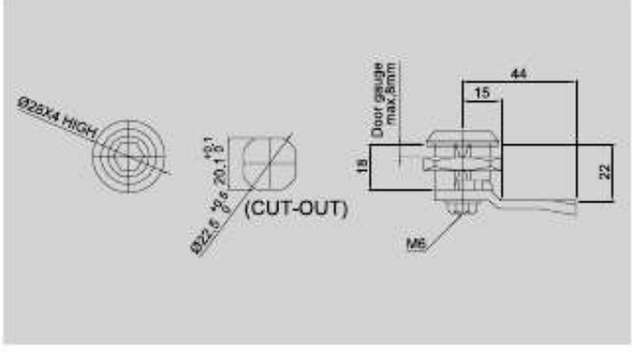
R70081-3





R70081-5





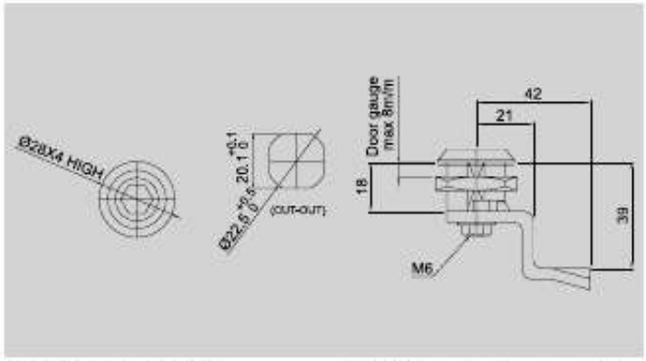
* 재질 : 아연(ZNDC2) * 표면처리 : 크롬도금(CR) / 흑색도장 * Material : Zinc(ZNDC2) * Finish : Chromium plating / Black painting

R70082



※R70194

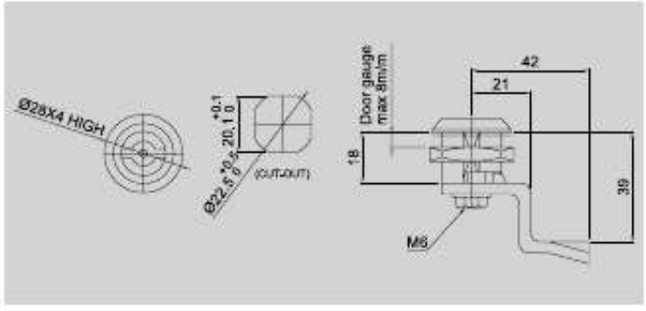




※ R70194는 주문 생산품. ※ R70194 ordering production.

R70082-1



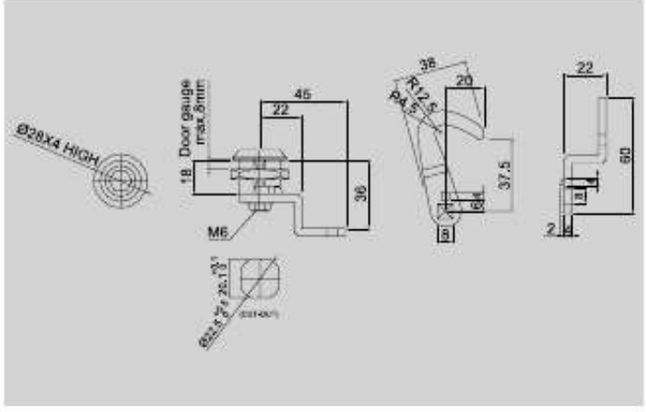


R70083



※R70195

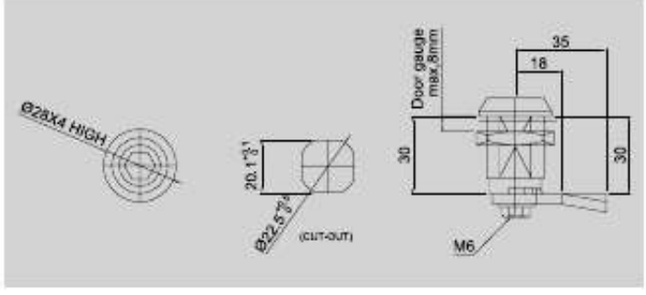




※ R70195는 주문 생산품. ※ R70195 ordering production.

R70117





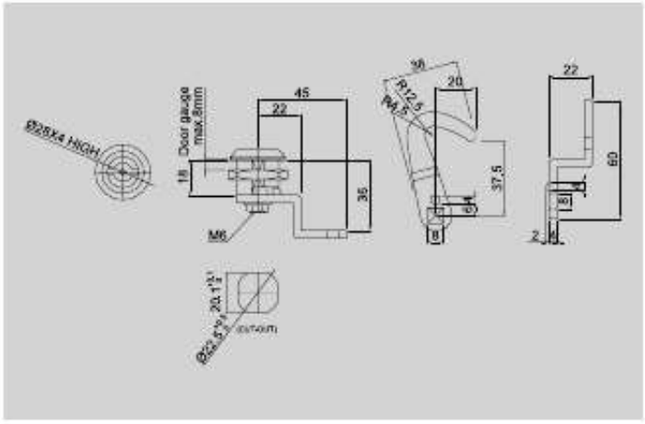
* 재질 : 아연(ZNDC2) * 표면처리 : 크롬도금(CR) / 흑색도장 * Material : Zinc(ZNDC2) * Finish : Chromium plating / Black painting

18_HingeLockerKey.indd 211 2020/0 /31 16:46:44

록커 LOCKER

R70083-1



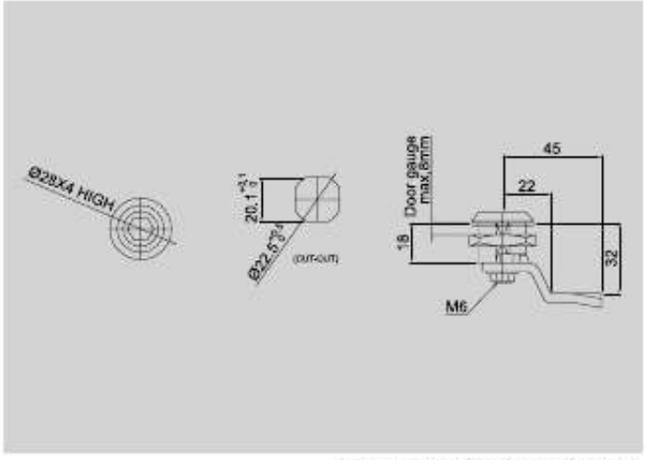


R70091



※ R70196

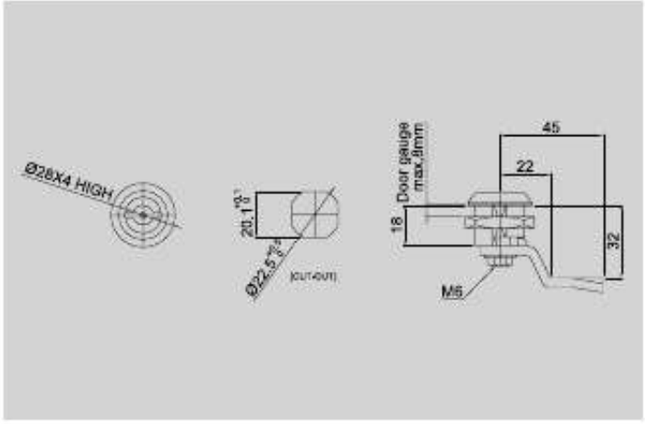




※ R70196 ordering production.

R70091-1





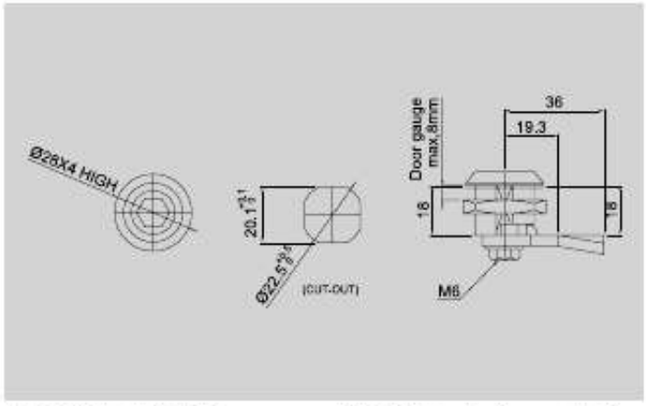
* 재질 : 아연(ZNDC2) * 표면처리 : 크롬도금(CR) / 흑색도장 * Material : Zinc(ZNDC2) * Finish : Chromium plating / Black painting

R70127



※R70199

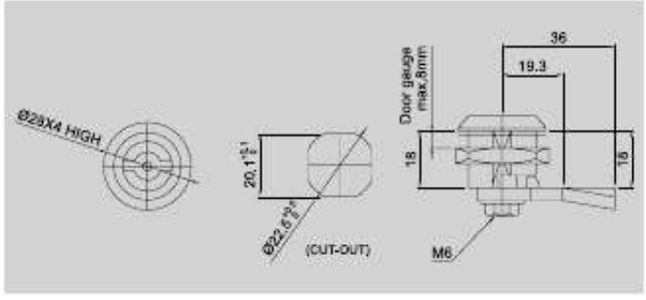




※ R70199는 추문 생산품. ※ R70199 ordering production.

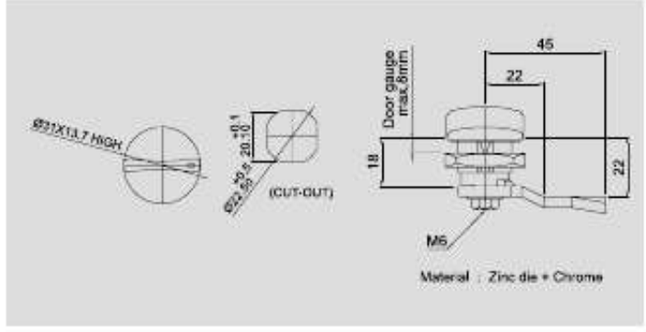
R70127- 1





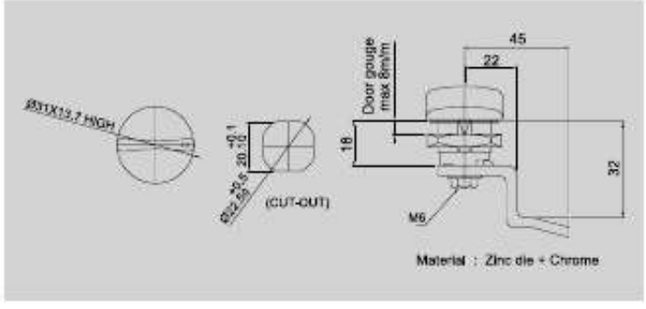
R72222S(DG)





R72232S(DG)





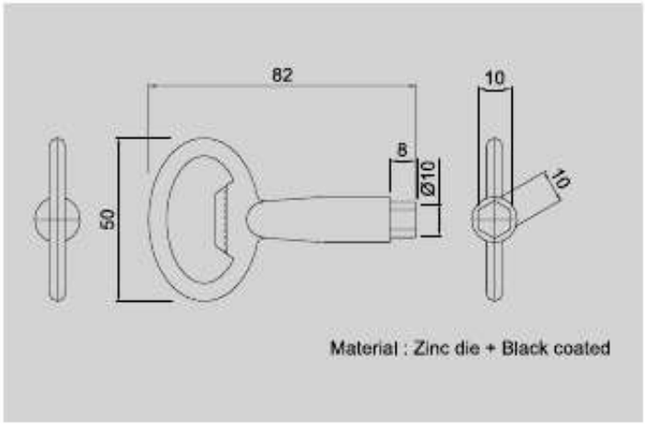
★ 재질 : 아연(ZNDC2) ★ 표면처리 : 크롬도금(CR) / 흑색도장 ★ Material : Zinc(ZNDC2) ★ Finish : Chromium plating / Black painting

18_HingeLockerKey.indd 213 2020/07/31 16:46:54

키 KEY

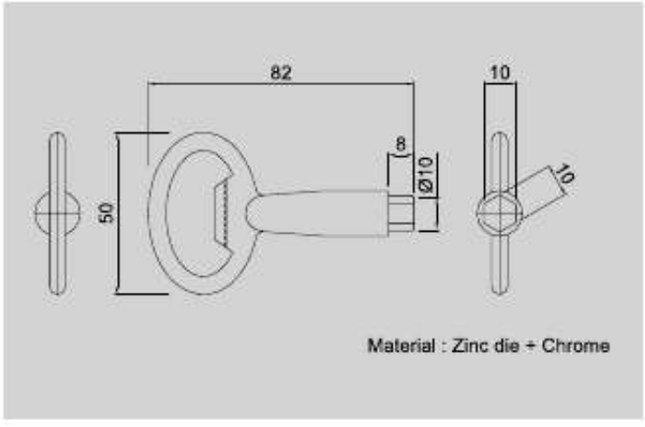
R70084 (BK)





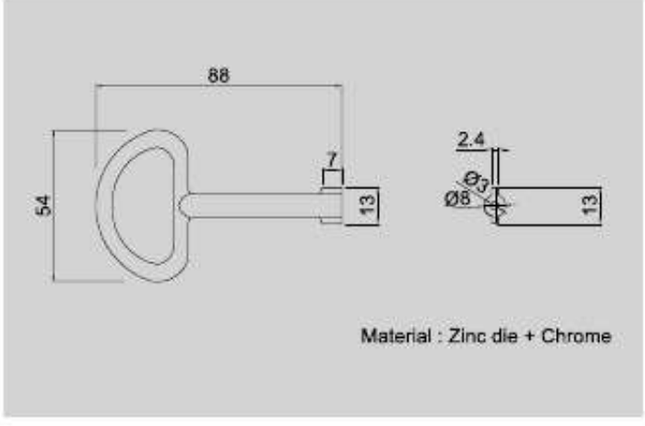
R70084C





R70086





* 재질 : 아연(ZNDC2) * 표면처리 : 크롬도금(CR) / 흑색도장 * Material : Zinc(ZNDC2) * Finish : Chromium plating / Black painting

LOAD METER·RPM METER
로드 메타·알피엠 메타







로드 메타·알피엠 메타 LOAD METER·RPM METER

사 양

LOAD	RPM
150%, 180%	주문 생산 가능 예 : 3,000 RPM

Specification

LOAD	RPM
150%, 180%	Ordering production Example : 3,000 RPM

특 징

1. 사용 등급 : CLASS 2.5% / F.S DC 10V
2. 사용전압은 주문에 의하여 제작이 가능합니다.
3. LOAD, RPM의 명판사양은 주문에 의하여 제작 가능합니다.
4. KEM-65, WEM-60, WEM-65의 경우 명판이 버티칼로도 제작이 가능합니다.

Characteristics

1. Rank : CLASS 2.5% / F.S DC 10V
2. Voltage for use can be manufactured to order.
3. Specification of LOAD and RPM tags can be manufactured to order.
4. Regarding KEM-65, WEM-60 and WEM-65 vertical tags can be manufactured.

안전을 위한 주의 사항 / Attention list for safety

경 고

1. 반드시 판넬에 취부하여 사용 하십시오.
   파손 및 오작동의 우려가 있습니다.
2. 제품의 분해, 가공, 개조, 수리를 하면 오작동의 원인이 되므로 절대로 하지 마십시오.
3. 본 기기의 고장방지를 위하여 정격에 맞는 전압을 사용하여 주십시오.
4. 본 기기를 낙하 시키는 등 충격을 가하지 마십시오.
5. 제품의 설치 및 분리는 전원을 OFF 한 후에 실시하여 주십시오.

Warning

1. In any case, it should be used while being attached to the panel.
2. Do not disassemble, process, remedy or repair this product in any case, because it may cause malfunctioning.
3. To prevent malfunctioning of this product, an appropriate power voltage should be supplied.
4. Avoid shocks such as dropping the product.
5. For installation and separation of this product, make sure the power is OFF.

주 의

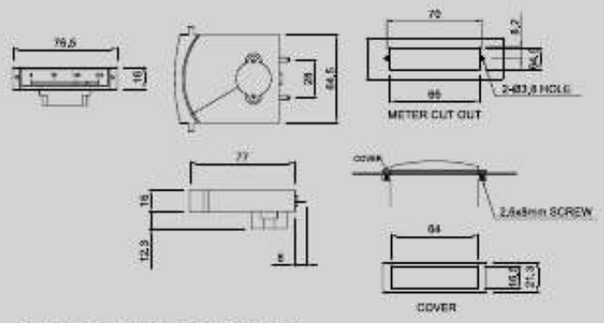
1. 주문하신 사양과 일치 하는지 확인 하십시오.
2. 실외에서 사용하지 마십시오.
3. 부식성 가스(특히 유해가스, 암모니아 등), 가연성 가스가 발생하지 않는 장소에서 사용하십시오.
4. 물이 들어 갔을 때에는 누전, 화재의 위험성이 있으므로 필히 점검을 하시기 바랍니다.
5. 청소시 물, 유기용제를 사용하지 마시고, 물기가 없는 마른수건이나 압축공기 등으로 청소를 하시기 바랍니다.
6. 정전기가 발생하는 마른 수건으로 전면부를 닦지 마십시오.
7. 단자의 극성을 확인한 후 배선을 정확하게 연결 바랍니다.
8. 본 제품의 품질 향상을 위하여 색상 및 일부 디자인은 사전 통보 및 예고없이 변경 될 수도 있습니다

Attention

1. Before starting operation, confirm between the product and your order form.
2. Do not use it outside.
3. Do not use it in a place, where corrosive gas (especially, harmful gas, ammonia, etc.) and inflammable gases are generated.
4. In case of contacting water, make sure it is thoroughly inspected before use in order to prevent leakage of electricity or fire.
5. For cleaning, use a dry cloth or compressed air, do not use water or fluid solvent.
6. Do not use dry towel cause static.
7. Make a correct wiring after checking the plus and minus of the terminal.
8. The specifications (colors and parts of design, etc.) are subject to change without prior notice

KEM-65

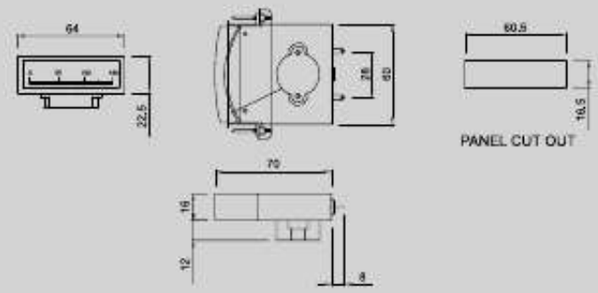




CLASS : 2.5% F.S : DC 10V

WEM-60

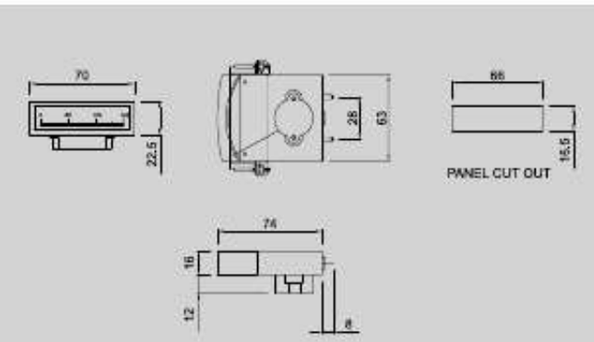




CLASS : 2.5% F.S : DC 10V

WEM-65



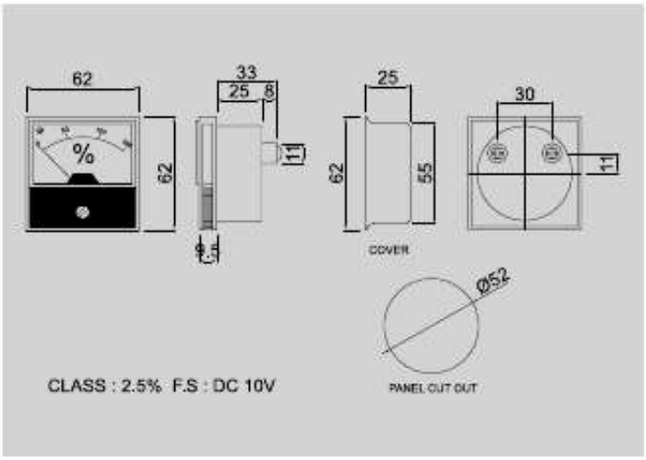


CLASS : 2.5% F.S : DC 10 V

로드 메타·알피엠 메타 LOAD METER·RPM METER

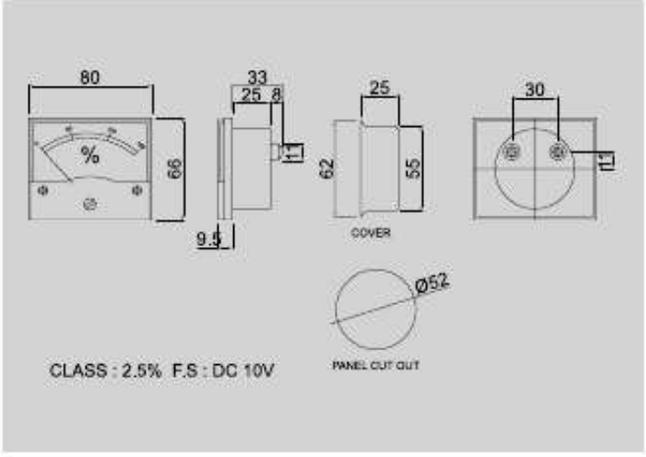
KD-60





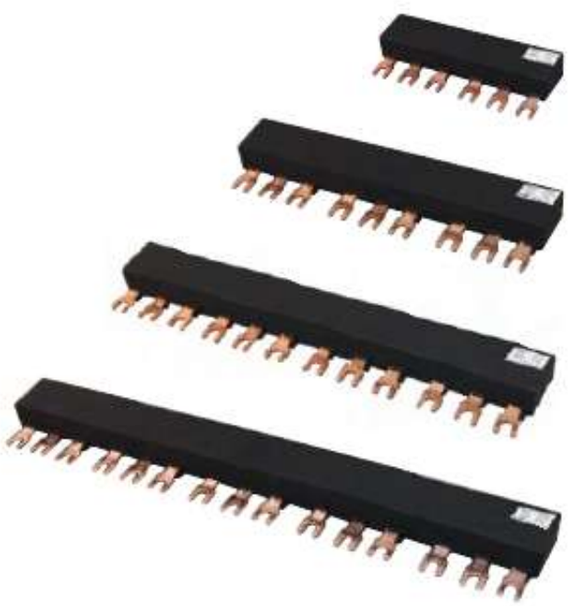
KD-68





THE OTHER PRODUCTS
기타 품목









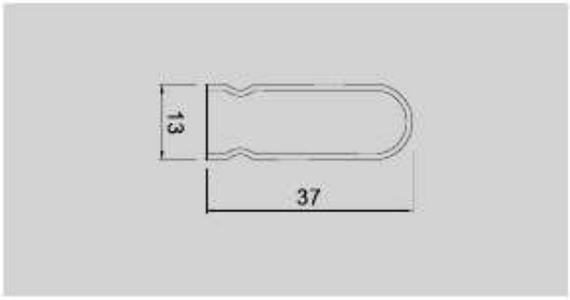


모터 결선 절연캡

INSULATION CAP FOR MOTOR CONNECTION

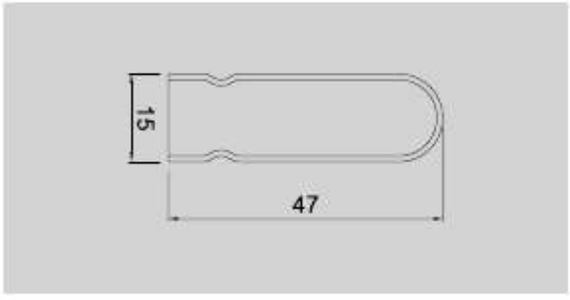
MCS
Small





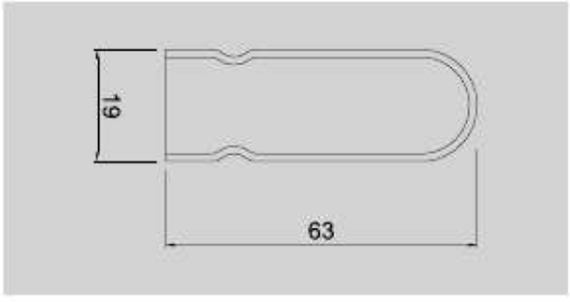
MCM
Medium





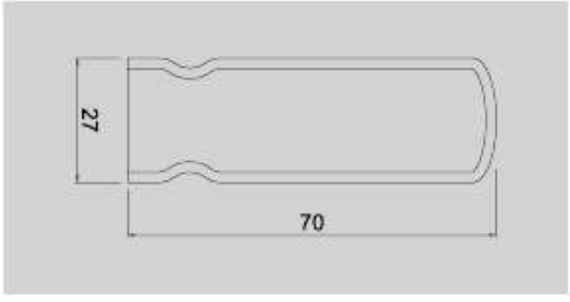
MCL
Large





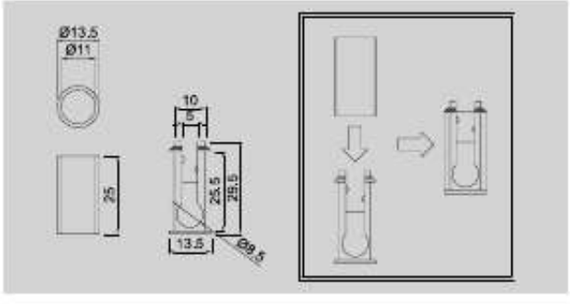
MCXL
X Large





MCN
N Type



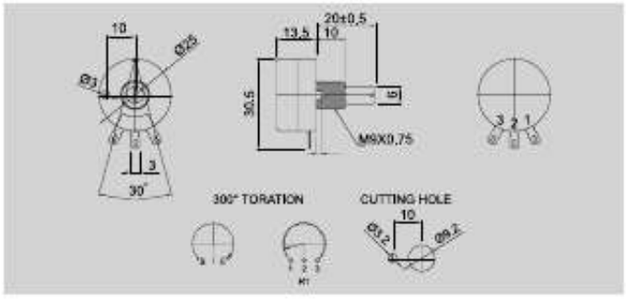


RV24YN20S

B101 / B201 / B501 / B102 / B202 / B502 / B103 / B503 / B104 / B204 / B254 / B504 / B105

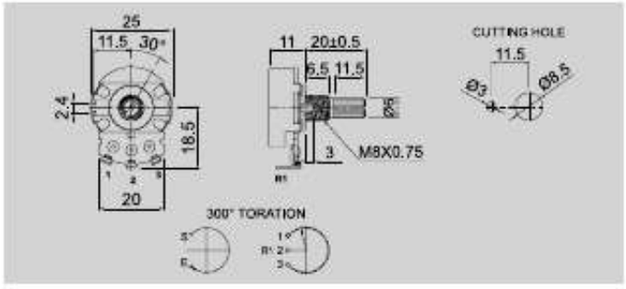
(100Ω / 200Ω / 500Ω / 1KΩ / 2KΩ / 5KΩ / 10KΩ / 50KΩ / 100KΩ / 200KΩ / 250KΩ / 500KΩ / 1MKΩ)





KBV-500K

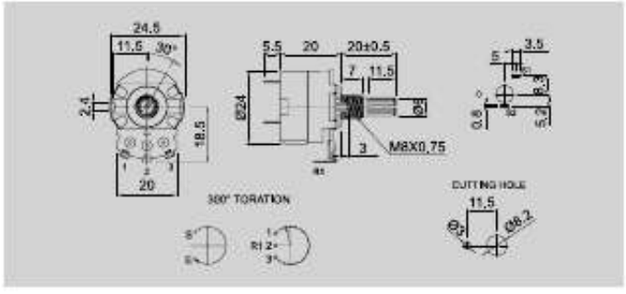




KBS-500K



(Switch type)



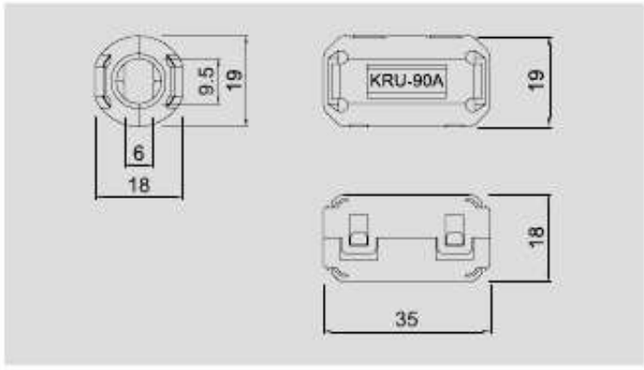
사 양 / Specification

구 분 / Division	RV24YN20S	KBS-500K	KBV-500K
전체 회전 각도 / Total rotational angle	300°±5°	300°±5°	
회전 토크 / Rotational torque	0.5-3N.cm	0.2-2N.cm	
정지 회전 토크 / Stopping rotational torque	80N.cm	70N.cm	
스위치 토크 / Switch torque		1.5-10N.cm	
전원 / Switch power		AC 250V 1A/AC 250V 3A	
전체 저항 / Total resistance	5kΩ-2MΩ	1kΩ-1MΩ	
정격 출력 / Rated power	1W	0.5W	
절연저항 / Insulation resistance	DC 1000V에 100MΩ이상 / More than 100MΩ at DC 1000V	1분, DC 500V이상 / 1minute or more at DC 500V	
내전압 / Withstand voltage	1분간 AC 1000V / AC 1000V for 1minute	1분간 DC 500V / DC 500V for 1minute	

페라이트 코어 FERRITE CORE

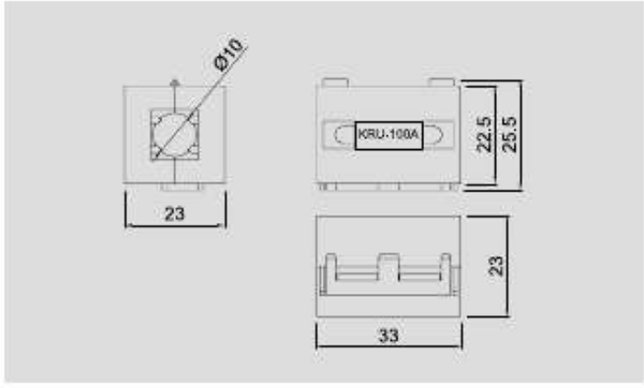
KRU-90A





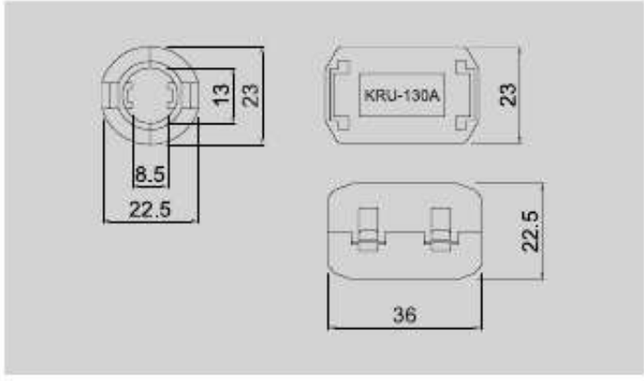
KRU-100A





KRU-130A





사용 예 Usage





페라이트 코어를 AC 전선에 부착함으로써 고주파 성분을 막아주어 전선 내 전류가 원활하게 흐를 수 있게 도와 줍니다.

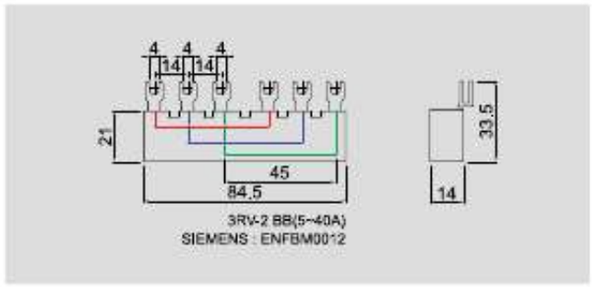
Placing ferrite core on AC cable help preventing high frequency as a result, the current on the cable is able to flow smoothly.

부스바 BUSBARS

3RV-SERIES (SIEMENS, SCHNEIDER)

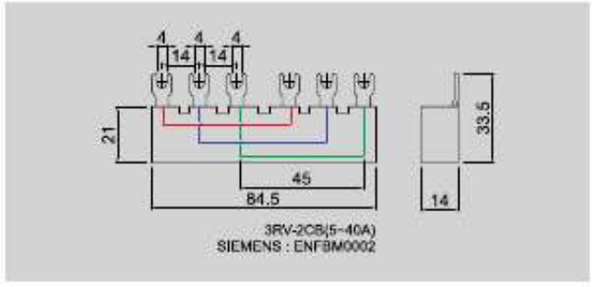
3RV-2BB





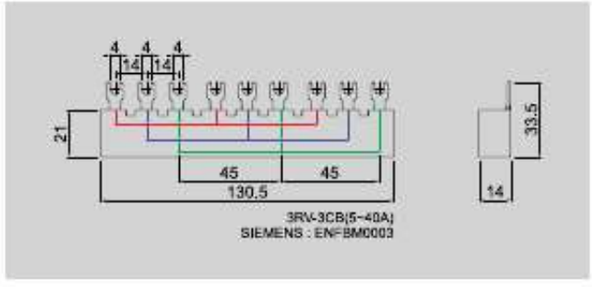
3RV-2CB





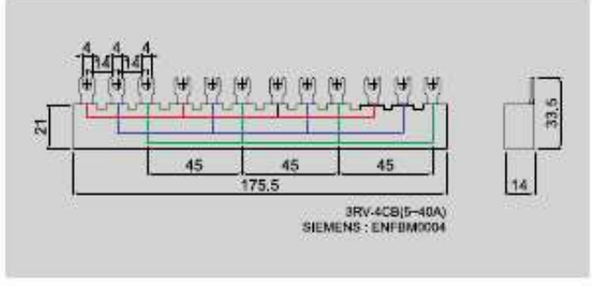
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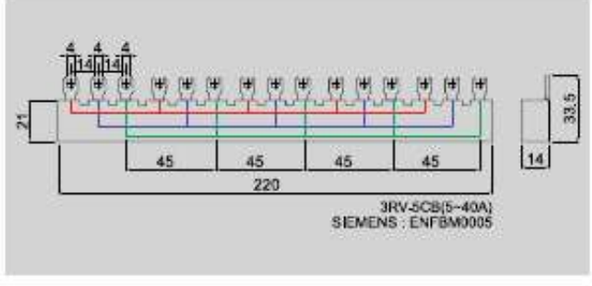
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3RV-5CB



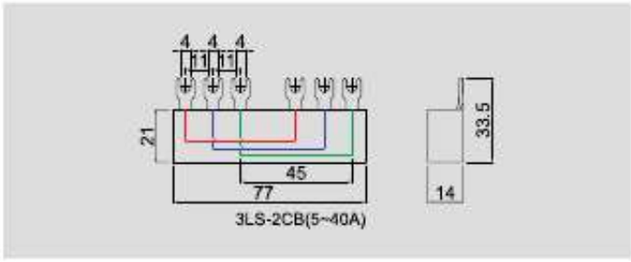


부스바 BUSBARS

3LS - SERIES (LS)

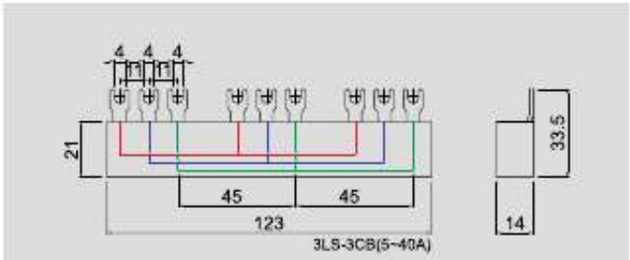
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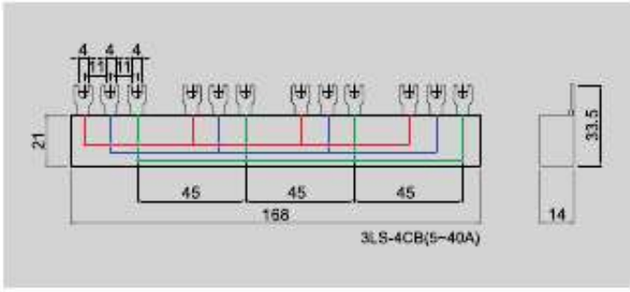
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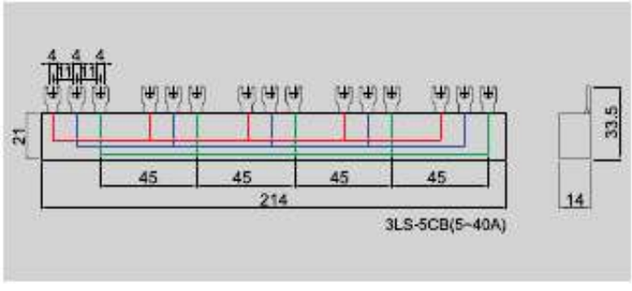
3LS-4CB





3LS-5CB





사용 예 / Usage





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