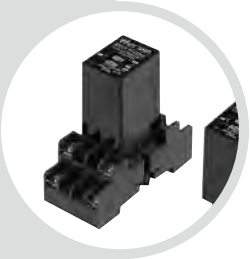
무접점전자릴레이

Solid State Relay(SSR)



기술적설명
Technical Description ····· **170**

주문시 확인 승낙 사항

Items to be verified and approved when ordering products

운영 제품을 구입하는 고객 여러분께 !

저희 운영 제품을 애용해 주셔서 대단히 감사합니다.
본 카달로그에서 당사 제품을 주문하실 경우, 견적서, 계약서, 사양서 등에 특기사항이 없는 경우에는 다음의 적합 용도조건, 보증내용등을 적용합니다. 아래 내용을 확인하시고 승낙하신 후 주문해 주십시오.

1. 보증 내용

① 보증기간
당사 제품의 보증기간은 구입 후 또는 지정 장소 납입 후 1년으로 합니다.

② 보증 범위
상기 보증 기간 중에 당사측의 책임으로 당사 제품에 고장이 발생한 경우 대체품 제공 또는 수리를 제품 구입 장소에서 무상으로 실시합니다. 단, 고장의 원인이 다음에 해당하는 경우에는 이 보증 대상 범위에서 제외됩니다.

a) 본 카달로그 또는 사양서에 기재되어 있는 이외의 조건, 환경, 취급 및 사용에 의한 경우
b) 당사 제품 이외의 원인에 의한 경우
c) 당사 이외에 의한 개조 또는 수리에 의한 경우
d) 당사 제품의 본래 사용법 이외의 사용에 의한 경우
e) 당사 출하 당시의 과학, 기술 수준으로는 예측 할 수 없었던 경우
f) 기타 천재지변, 재해 등 당사측의 책임이 아닌 원인에 의한 경우

참고로 여기서의 보증은 당사 제품 단품의 보증을 의미하는 것이며, 당사 제품 고장에 의해 유발되는 손해는 보증 대상에서 제외됩니다.

2. 책임의 제한

① 당사 제품에 기인해 발생한 특별손해, 간접손해, 또는 소극적 손해에 대해 당사는 일체의 책임을 지지 않습니다.
② 프로그래밍 가능한 당사제품에 대해 당사 이외의 자가 실시한 프로그램 또는 그에 의해 발생한 결과에 대해 당사는 일체의 책임을 지지 않습니다.

3. 적합 용도의 조건

① 당사 제품을 다른 제품과 조합해서 사용하는 경우에 적합해야 할 규격, 법규 및 규제는 고객이 직접 확인해 주십시오.
또 고객이 사용하시는 시스템, 기계, 장치에 대한 당사제품의 적합성은 고객이 직접 확인해 주십시오.
이것이 실시되지 않는 경우 당사는 당사 제품의 적합성에 대해 책임을 지지 않습니다.

② 다음 용도에 사용하는 경우, 당사 영업 담당자와 상담하고 사양서 등을통해 확인하는 한편 정격, 성능에 대해 여유를 주거나 만일 고장이 발생해도 위험을 최소화 할 수 있는 안전 회로 등의 안전 대책을 2중으로 강구해 주십시오.

a) 실외, 잠재적인 화학적 오염 또는 전기적 방해를 받는 용도 또는 본 카탈로그에 기재되지 않는 조건이나 환경에서 사용.
b) 원자력 제어설비, 소각설비, 철도, 항공, 차량설비, 의료용 기계, 반도체 제조장비, 오락기계, 안전장치 및 행정 기관 이나 개별 업계의 규제에 따른 설비
c) 인명이나 재산에 위험이 미칠 수 있는 시스템, 기계, 장치
d) 가스, 수도, 전기의 공급 시스템, 24시간 연속 운전 시스템 등 높은 신뢰성이 필요한 설비
e) 자동차(2륜차 포함) 탑재 설비
f) 기타상기 a)~e) 에 준하며 고도의 안전성이 필요한 용도

③ 고객이 당사 제품을 인명이나 재산에 중대한 위험을 미치는 용도에 사용하는 경우에는 시스템 전체적으로 위험을 알리거나 여유 있는 설계에 의해 필요한 안전성을 확보할 수 있도록 설계되어 있는지 당사 제품이 전체적으로 의도한 용도에 적절히 배전, 설치 되어 있는지 반드시 고객이 직접 사전에 확인해 주십시오.
④ 본 카달로그에 기재되어 있는 용도는 참고용이므로 채택 시에는 기기, 장치의 기능과 안전성을 확인 한 후에 사용해 주십시오.
⑤ 당사 제품의 잘못된 사용으로 고객 또는 제 3자에게 예기치 않는 손해가 발생하지 않도록 사용상의 금지 사항 및 주의 사항을 완전히 숙지 한 후 반드시 지켜 주십시오.

4. 사양변경

본 카달로그에 기재된 제품의 사양 및 동봉품은 개선 또는 기타 사유에 의해 필요에 따라 변경될 수 있습니다.
당사 영업 담당자와 상담하고 당사 제품의 실제 사양을 확인해 주십시오.

5. 서비스의 범위

당사 제품의 가격에는 기술자 파견 등의 서비스 비용은 포함되어 있지 않습니다.
원하실 경우에는 당사 영업 담당자와 상담해 주십시오.

6. 적용 범위

상기 사항은 대한민국 내에서의 거래 및 사용을 전제로 합니다.
해외에서의 거래 및 사용에 대해서는 당사 영업 담당자와 사전에 상담해 주십시오.

Dear customers who purchase Woon Young products!

Thank you for purchasing Woon Young products.
If there is no particular information on estimates, contracts or specifications when you order products from this catalog, the following conditions of use and warranty shall apply. Please place orders after you read and approve the following items.

1. Content of Warranty

① Warranty period
The warranty period of this product shall be 1 year from the date of purchase or from the day the product is delivered to a designated place.

② Scope of warranty
If failure occurs due to reasons attributable to this company during the above-said warranty period, this company will provide substitute products or repair the product free of charge at the place of purchase. However, if the cause of failure is one of the following, it shall be excluded from being eligible for warranty benefits.

a) Products were handled or used under the conditions and environmnt not entered in this catalog or in specification.
b) Failure occurred due to reasons other than those caused by this product.
c) Failure occurred due to modification or repairs performed by persons other than this company.
d) Failure occurred because the product was used based on the method other than the original usage of this product.
e) Failure was not expected by the scientific and technical levels prevailing at the time of shipment.
f) Failure occurred due to causes beyond the control of this company, e.g. natural disasters and accidents.

Warranty as specified herein means the warranty covering only the product of this company, and any damage caused by the failure of this product shall be excluded from being eligible for warranty coverage.

2. Limitations on responsibility

① This company shall not be held liable whatsoever for any special damage, indirect damage or passive damage caused by this product of this company.
② This company shall not be held liable whatsoever for any programming performed by persons other than this company on the programmable products or for the results of such programming.

3. Conditions of compatibility

① Please check the standards, laws and regulations applicable when this product is used in combination with other products.
In addition, be sure to check the compatibility of this product covering the systems, machines and devices used by you.
If you fail to take actions as above, this company shall not be held liable for the compatibility of the product.

② If the product is used for the following purposes, discuss details with the sales manager of this company based on the provided specifications. At the same time, allow sufficient rating and performance, or take appropriate safety measures through the safety circuits that can minimize risks even if failure occurs.

a) Using the product outside or under environment exposed to potential chemical pollution or electric interference, or using the products under the conditions or environment not specified in this catalog.
b) Nuclear controllers, incinerators, railways, aviation, vehicles, medical equipment, semiconductor manufacturing equipment, game machines, safety devices and equipment regulated by administrative agencies or individual maker.
c) Systems, machines and devices that can cause personal or property damage.
d) Equipment requiring high degree of reliability, e.g. gas, water and electricity supply systems, and 24-hour continuous operation systems.
e) Automobile (Including two-wheeled vehicles) mounted equipment
f) Other purposes equivalent to the above-said paragraph a) through e) requiring high degree of safety.

③ If the product is used for purposes that might induce serious personal or property damage, be sure that you inform risks covering the entire system in advance or verify whether the product is designed to ensure required safety or whether the product is properly connected and installed to suit the intended overall purposes
④ The purposes of the products shown in this catalog are only for reference purposes. Apply such purposes only after you check the functions and the safety of the equipment and devices.
⑤ To prevent unexpected damage to you or to third parties resulting from improper use of this product, be sure to use the product after you thoroughly read and understand items related to prohibitions and caution during use.

4. Changing specifications

The products and specifications entered in this catalog are subject to change as needed for improvement or for other reasons. Discuss with the sales manager of this company and verify actual specifications of the products.

5. Range of service

The product prices do not contain any service expenses, e.g. dispatch of technicians. If you need any services, discuss with the sales manager of this company.

6. Scope of application

Items described above are on the premise that the products are traded and used in the Republic of Korea. Discuss with the sales manager of this company regarding overseas transactions and uses.

GUIDELINES FOR SAFETY

안전을 위한 주의사항 Guidelines for Safety

- **"안전을 위한 주의사항" 은 제품을 안전하고 올바르게 사용하여 사고나 위험을 미리 막기 위한 것이므로 반드시 지켜 주십시오.**
- **주의사항은 "경고"와 "주의"의 두 가지로 구분되어 있으며 "경고" 와 "주의"의 의미는 다음과 같습니다.**

⚠ **경고** 지시사항을 위반하였을 때 심각한 상해나 사망이 발생 할 가능성이 있는 경우입니다.

⚠ **주의** 지시사항을 위반하였을 때 경미한 상해나 제품손상이 발생할 가능성이 있는 경우 입니다.

- 제품과 사용설명서에 표시된 ⚠ 그림기호의 의미는 특정 조건 하에서 위험이 발생 할 우려가 있으므로 주의하라는 기호입니다.

⚠ 경 고

1. **인명이나 재산상에 영향이 큰 기기 (예: 원자력제어, 의료기기, 차량, 철도, 항공, 연소장치, 오락기기 등 또는 안전장치)에 사용할 경우 반드시 2중으로 안전장치를 부착한 후 사용하여 주십시오.**
   - 화재, 인명사고, 재산상의 손실이 발생할 수 있습니다.
2. **반드시 패널에 취부 하여 사용하시고 FG 또는⏚단자는 접지하여 주십시오.**
   - 감전의 우려가 있습니다.
3. **전원이 인가된 상태에서 결선 및 점검, 보수를 하지 마십시오.**
   - 감전의 우려가 있습니다.
4. **자사 수리기술자 이외에는 제품을 개조하지 마십시오.**
   - 감전이나 화재의 우려가 있습니다.
5. **입력 전원사양을 반드시 확인하시고 전원 연결 시 반드시 단자번호를 확인하시고 연결하십시오.**
   - 화재의 우려가 있습니다.
6. **전원을 차단한 직후에 부하측 단자를 만지지 마십시오.**
   - 감전의 우려가 있습니다.

⚠ 주 의

1. **실외에서 사용하지 마십시오.**
   - 제품의 수명이 짧아지는 원인이 되며 감전의 우려가 있습니다.
2. **전원 및 부하배선 연결 시에는 부하전류에 따른 전선의 굵기에 유의하여 주십시오.**
   - 전류에 비하여 전선의 굵기가 가늘면 화재의 위험이 있습니다.
3. **단자대의 나사는 규정토크로 조여 주십시오.**
   규정토크(TORQUE) M3.5: 0.6~1.2N(6~12kgf.cm), M4 : 1.3~1.5 N(10~14Kgf.cm), M5: 2.1~3.0N(21~30kgf.cm), M8:10.6~12.5N(108~127kgf.cm), M12: 35.7~42N(364~428kgf.cm) M14: 57.8~68N(590~693kgf.cm)
   - 나사가 풀리면 접촉불량으로 화재의 우려가 있습니다.
4. **반드시 정격과 성능 범위내에서 사용하여 주십시오.**
   - 제품의 수명이 단축되고 고장 발생의 원인이 됩니다.
5. **청소시 물, 유기용제 등의 사용을 금합니다.**
   - 감전 및 화재와 제품변형의 우려가 있습니다.
6. **가연성가스, 폭발성가스, 습기, 직사광선, 복사열, 진동, 충격이 있는 장소에서의 설치 및 운전을 금합니다.**
   - 제품수명단축 및 고장, 화재, 폭발의 위험이 있습니다.
7. **제품의 내부로 먼지나 배선찌꺼기 등의 유해한 도체가 유입되지 않도록 하여 주십시오.**
   - 고장 및 화재의 우려가 있습니다.
8. **제품 사용시 환기되지 않는 밀폐된 곳에서 사용하지 마십시오.**
9. **동작 중 방열판류에는 고열이 발생하므로 절대 만지지 마십시오.**
   - 감전 및 화상의 우려가 있습니다.
10. **제품폐기 시에는 산업폐기물로서 처리하여 주십시오.**

- Guidelines for safety is to use product safe and properly and prevent accidents or dangers. Never forget to keep it.
- Guidelines can be classified into two, warning and caution, and their meanings are as follows.

⚠ **Warning** When there is the possibility that serious injury or death can occur when violating directions.

⚠ **Caution** When there is the possibility that slight injury or the damage of products can occur when violating directions.

- The meaning of ⚠ lexigram indicated on the products and instructions is to handle with care as any danger can occur under specific conditions.

⚠ Warning

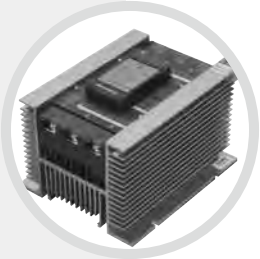
1. When using in instruments that have great influence on lives or properties(for examples: nuclear energy control, medical equipment, vehicles, railroad, aviation, combustion apparatus, entertainment systems or safety device), use after being sure to attach duplex safety device.
   - There may be fire, loss of lives, or property damages.
2. Use after being sure to attach to panel, and ground FG or ⏚ terminal.
   -There may be the possibility of electric shock.
3. Don't connect, inspect and repair under the power-up.
   -There may be the possibility of electric shock.
4. Don't remodel products except by the company's engineers.
   -There may be the possibility of fire or electric shock.
5. Be sure to check input power source options, and connect after checking terminal number when connecting power sources.
   -There may be the possibility of fire.
6. Don't touch the terminal of load side immediately after power source is cut off.
   -There may be the possibility of electric shock.

⚠ Caution

1. Don't use outdoors (for outdoor, separate order)
   -It can be a cause of product's life becoming short, and there may be the possibility of electric shock.
2. When connecting power source and load wiring, pay attention to the thickness of cables according to load current.
   -There may be the danger of fire if the thickness of cables is small for the current.
3. Tighten the screw of port by the regulated torque.
   The regulated torque - M3.5 : 0.6~1.2N(6~12kgf.cm), M4 : 1.3~1.5 N(10~14Kgf.cm), M5 : 2.1~3.0N(21~30kgf.cm) M8 : 10.6~12.5N(108~127kgf.cm), M12 : 35.7~42N(364~428kgf.cm), M14 : 57.8~68N(590~693kgf.cm)
   -If the screw comes loose, there may be the possibility of fire because of bad contact.
4. Be sure to use within the range of rating and performance.
   -Product's life is shortened, and it may be a cause of troubles.
5. Don't use water or organic solvent when cleaning.
   -There may be the possibility of electric shock, fire and product deformation.
6. Don't install or operate in places with inflammable gas, explosive gas, direct ray of light, radiation heat, vibration and shock.
   -There may be the possibility of troubles and fire.
7. Make sure that harmful conductors such as dust or fragments of cables may not be flowed into the inside of product.
   -There may be the possibility of trouble or fire.
8. Don't use this product where closed and not ventilated place
   - It may cause a fire and the damage to product.
9. Never touch during operation as there is superheat on the radiator board.
10. Dispose as industrial waste when discarding products.

단상, 삼상 무접점전자릴레이

1Ø, 3Ø Solid State Relay(SSR)



• 1Ø WYPM AC220V 2A/3A/5A (DC/AC Type) ····· 220
• 1Ø WYGA AC220V 1.2A (DC/AC Type) ····· 221
• 1Ø WYGB AC220V 2A DC (DC/AC Type) ····· 223
• 1Ø WYPS AC220V AC3A DC (DC/AC Type) ····· 224
• 1Ø WYSC AC, AC/DC220V AC3A (DC/AC, DC/AC DC Type) ····· 225
• 1Ø WYR AC220V/440V 1A (DC/AC, AC/AC Type) ····· 226
• 1Ø WYMY AC220V, 3A (DC/AC, AC/AC Type) ····· 228
• 1Ø WYMY DC/AC,DC 220V 무극성 1A ····· 229
• 1Ø WYMY AC220V 2-CH 1A (DC/AC, AC/AC Type) ····· 230
• 1Ø WYLY AC220V 3A (DC/AC, AC/AC Type) ····· 231
• 1Ø WYLG/H AC220/440V 10A~40A (DC/AC Type) ····· 232
• 1Ø WYNG AC220V 10A~80A (DC/AC, AC/AC Type) ····· 234
• 1Ø WYNH AC440V 10A~80A (DC/AC, AC/AC Type) ····· 235
• 1Ø WYG AC220V 10A~80A (DC/AC, AC/AC Type) ····· 236
• 1Ø WYH AC440V 10A~80A (DC/AC, AC/AC Type) ····· 237
• 1Ø WYVG AC220V 10, 15A (DC/AC Type) ····· 238
• 1Ø WYVH AC440V 10, 15A (DC/AC Type) ····· 239
• 1Ø WYMG AC220V 10A~40A (DC/AC Type) ····· 240
• 1Ø WYMG AC220V 10A~40A (AC/AC Type) ····· 241
• 1Ø WYMH AC440V 10A~40A (DC/AC Type) ····· 242
• 1Ø WYMH AC440V 10A~40A (AC/AC Type) ····· 243
• 1Ø WYNMG AC220V 50A~160A (DC/AC Type) ····· 244
• 1Ø WYNMG AC220V 50A~160A (AC/AC Type) ····· 245
• 1Ø WYNMH AC220V 50A~160A (DC/AC Type) ····· 246
• 1Ø WYNMH AC220V 50A~160A (AC/AC Type) ····· 247
• 1Ø WYFMH AC220V 50A~160A (DC/AC Type) ····· 248
• 1Ø WYFMH AC220V 50A~160A (AC/AC Type) ····· 249
• 1Ø WYG AC220V 15A~40A "B" Contact (DC/AC Type) ····· 250
• 1Ø WYG AC220V 15A~40A "B" Contact (AC/AC Type) ····· 251
• 3Ø WYN3G AC220V 10A~80A (DC/AC, AC/AC Type) ····· 252
• 3Ø WYN3H AC440V 10A~80A (DC/AC, AC/AC Type) ····· 253
• 3Ø WYL3G AC220V 10A~80A (DC/AC, AC/AC Type) ····· 254
• 3Ø WYL3H AC440V 10A~80A (DC/AC, AC/AC Type) ····· 255
• 3Ø WY3G AC220V 10A~80A (DC/AC, AC/AC Type) ····· 256
• 3Ø WY3H AC440V 10A~80A (DC/AC, AC/AC Type) ····· 257
• 3Ø WYFM3G AC220V 60A~150A (DC/AC Type) ····· 258
• 3Ø WYFM3G AC220V 60A~150A (AC/AC Type) ····· 259
• 3Ø WYFM3H AC220V 60A~150A (DC/AC Type) ····· 260
• 3Ø WYFM3H AC220V 60A~150A (AC/AC Type) ····· 261
• 1Ø WYFNG AC220V 30A~80A (DC/AC, AC/AC Type) ····· 262
• 1Ø WYFNH AC440V 30A~80A (DC/AC, AC/AC Type) ····· 263
• 3Ø WYFN3G AC220V 30A~80A (DC/AC, AC/AC Type) ····· 264
• 3Ø WYFN3H AC440V 30A~80A (DC/AC, AC/AC Type) ····· 265
• 3Ø WY3G (모터 정,역 유니트 일체형) AC220V 15A~40A ····· 266
• 3Ø WY3H (모터 정,역 유니트 일체형) AC380/440V 15A~40A ····· 267
• Multi Intelligent SSR i Series (10CH) ····· 268

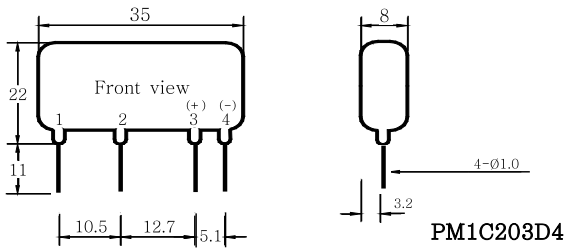
WYPM DC 3A (DC/DC Type)

PCB Type

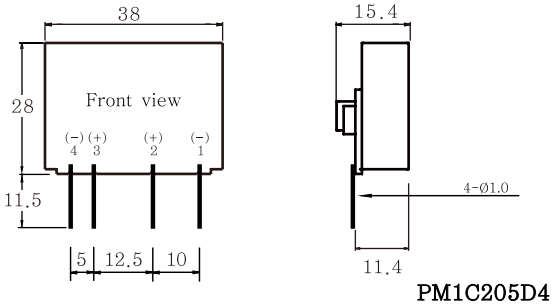
HYBRID화한 제품으로 내구 및 신뢰성을 향상 시킨 구조로 좁은 공간 에서도 PCB에 직접 삽입하여 사용 할수있으며 진동 충격에 강한 DC부하형 소형 SLIM형 SSR 입니다.

This hybrid product features improved durability and reliability. This compact, slim SSR can directly be inserted into PCB in a narrow space, and the DC load type small slim SSR is highly resistant to vibration and impact.

Dimension



PM1C203D4

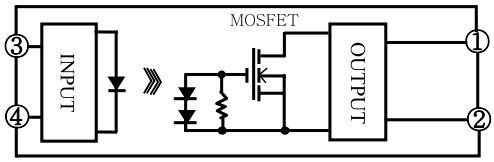


PM1C205D4

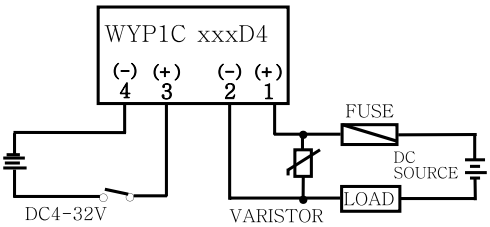
Specifications

ITEM \ MODEL		WYPM1C203D4	WYPM1C205D4
OUTPUT	Rated voltage	200VDC	
	Voltage range	10 ~ 200VDC	
	ON Resistance	0.8Ω	
	Rated load current	3.0A(rms1.5A) at 25°C	5.0A(rms2.5A) at 25°C
	Contact voltage drop	2.0VDC	
INPUT	Maximum input voltage	32VDC	
	Input voltage range	4 ~ 32VDC	
	Input current	10±3(mA)	8±3(mA)
	Minimum operating voltage	3.0VDC	
	Turn off voltage	1.4VDC	
GENERAL	Dielectric withstand	1500VAC / rms / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	10ms	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	10g	20g

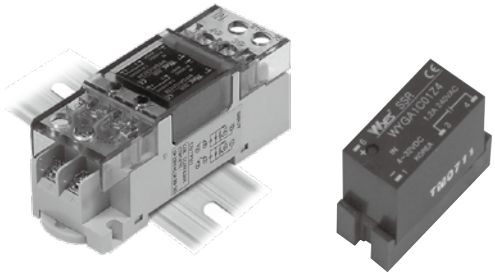
Block Diagram



Application Circuit



WYGA DC 0.5~1.5A (DC/DC Type)

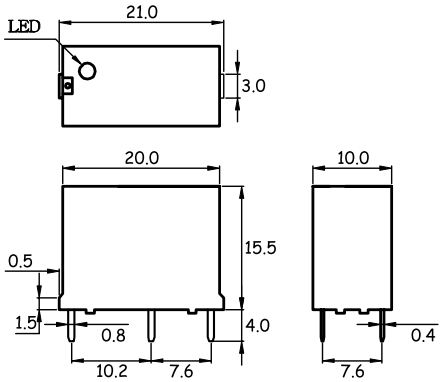


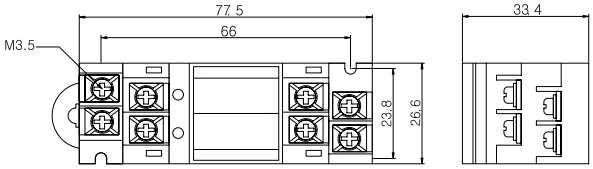
PCB & DIN Rail Socket Type

초소형으로 PCB에 직접 설계하여 사용할수 있는 구조와 DIN RAIL에 부착 사용할 수 있는 구조로 1회로 및 2회로로된 소켓형 SSR 입니다.

This 1-circuit and 2-circuit sub-miniature socket-type SSR features a structure where it can directly be designed and used on PCB and a structure where it can be attached and used on DIN Rail.

Dimension

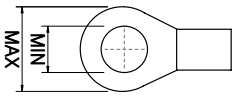




Specifications

ITEM \ MODEL		WYGA1C061 / 101 / 205D4 (SSR) WYGA2C061 / 101 / 205D4 (2CH)		
OUTPUT	Rated voltage	60 / 100 / 200VDC		
	Voltage range	5 ~ 60 / 5 ~ 100 / 5 ~ 200VDC		
	ON Resistance	0.14Ω	0.12Ω	1.75Ω
	Rated load current	1.5A	1.0A	0.5A
INPUT	Maximum input voltage	32VDC		
	Input voltage range	4 ~ 32VDC		
	Input current	10±3(mA)		
	Minimum operating voltage	2.1 / 2.0 / 2.3VDC		
	Turn off voltage	1.9 / 1.9 / 2.1VDC		
GENERAL	Dielectric withstand	1500VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	10ms		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	60g		

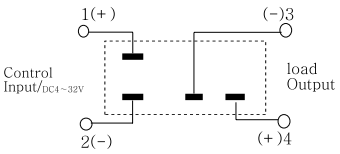
Terminal



Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

1P Connection Diagram

- PCB Type -

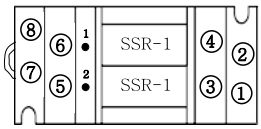


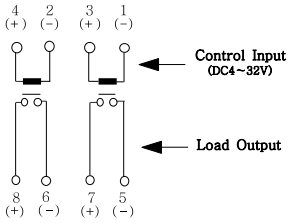
*출력단자 ③,④이 교류(AC)일경우 극성 없음

※ It is non-polar load output ter. 3, 4 in case of AC type

2P Connection Diagram

- Socket Type -





*출력단자 가 교류(AC)일경우 극성 없음

※ It is non-polar load output terminal in case of AC type

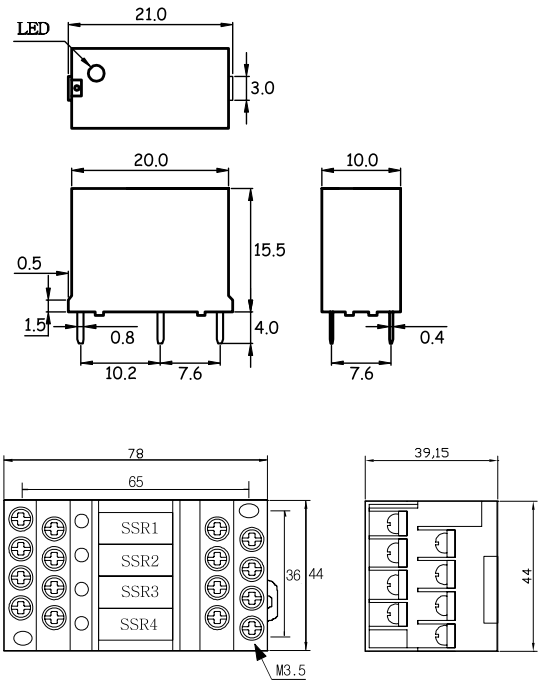
WYGA DC 0.5~1.5A (DC/DC Type)

DIN Rail Socket Type

초소형으로 PCB에 직접 설계하여 사용할수 있는 구조와 DIN RAIL에 부착 사용할 수 있는 구조로 4회로로 된 소켓형 SSR 입니다.

This 4-circuit sub-miniature socket-type SSR features a structure where it can directly be designed and used on PCB and a structure where it can be attached and used on DIN Rail.

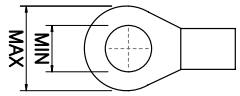
Dimension



Specifications

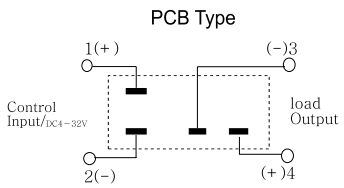
ITEM	MODEL	WYGA1C061 / 101 / 205D4 (SSR) WYGA4C061 / 101 / 205D4 (4CH)
OUTPUT	Rated voltage	60 / 100 / 200VDC
	Voltage range	5 ~ 60 / 5 ~ 100 / 5 ~ 200VDC
	ON Resistance	0.14 / 0.12 / 1.75Ω
	Rated load current	1.5 / 1.0 / 0.5A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	2.1 / 2.0 / 2.3VDC
	Turn off voltage	1.9 / 1.9 / 2.1VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.1kg

Terminal

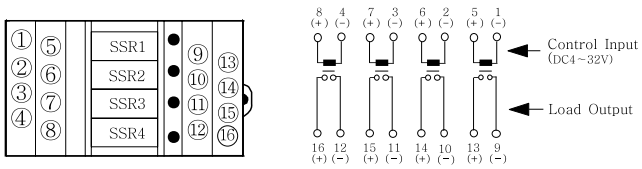


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

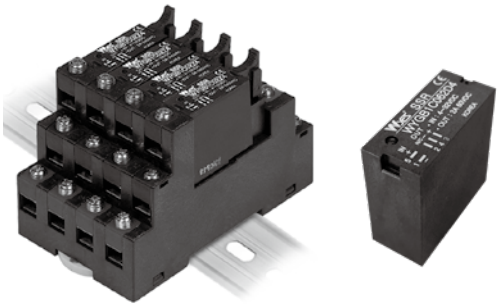
1P Connection Diagram



4P Connection Diagram



WYGB DC 1.5~2.0A (DC/DC Type)

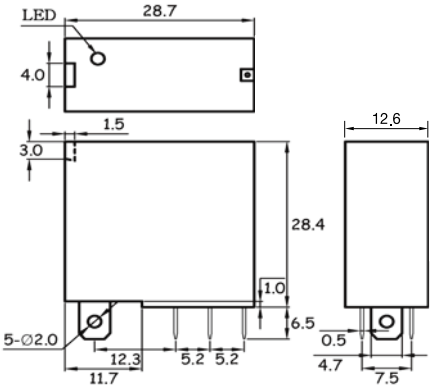


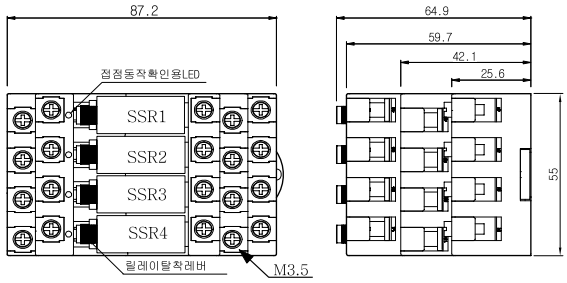
DIN Rail Socket Type

소형 제품으로 PCB 삽입용 소켓과 DIN RAIL 취부형으로 1회로, 4회로로 구성되어 있으며 SSR을 탈부착할 수 있어 설치 및 개보수 점검시 용이한 구조로 되어 있습니다.

This miniature product equipped with PCB insertion sockets and DIN Rail is composed of 1-circuit and 4-circuits. Since SSR can be installed or removed, it is easy to install, repair or inspect the equipment.

Dimension

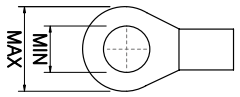




Specifications

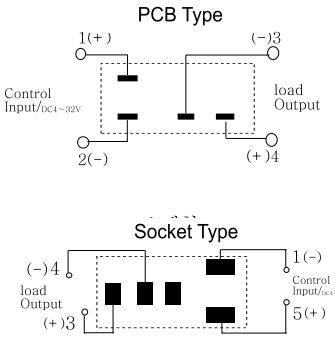
ITEM	MODEL	WYGB1C062 / 102 / 201D4 (1CH) WYGB4C062 / 102 / 201D4 (4CH)
OUTPUT	Rated voltage	60 / 100 / 200VDC
	Voltage range	5 ~ 60 / 5 ~ 100 / 5 ~ 200VDC
	ON Resistance	0.06 / 0.1 / 0.28Ω
	Rated load current	2.0 / 1.8 / 1.5A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	1.9 / 2.1 / 2.0VDC
	Turn off voltage	1.8 / 2.0 / 1.8VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	10g

Terminal

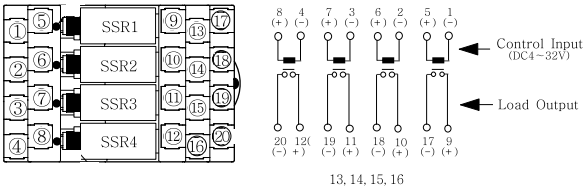


Input Ter : Max 8, Min 3.5
Output Ter : Max 8, Min 3.5

1P Connection Diagram



4P Connection Diagram



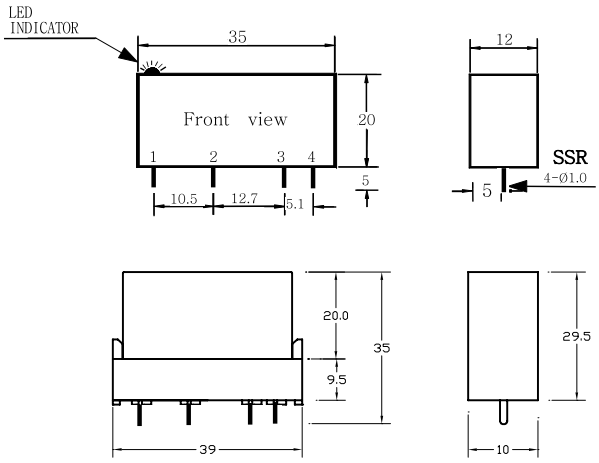
WYPS DC 3A (DC/DC Type)

PCB & Socket Type

PCB에 직접 설계 또는 소켓을 이용 모듈화 하여 사용할 수 있는 구조로 되어 있으며 전원 표시 램프(LED)가 부착되어 있어 POWER 입력부의 통전 상태를 알 수 있는 소형 SSR 입니다.

This product is structured in a way that it can be directly designed on PCB or modularized using sockets. This small SSR features LED lamp on the input circuit can be power indicated.

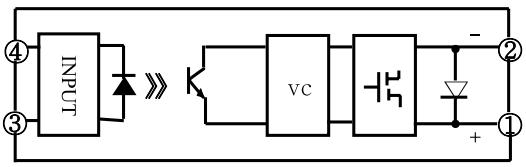
Dimension



Specifications

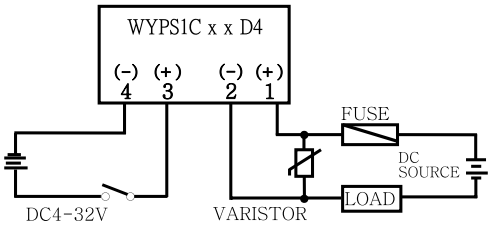
ITEM \ MODEL		WYPS1C203D4	WYPS1C501D4
OUTPUT	Rated voltage	200VDC	500VDC
	Voltage range	10 ~ 200VDC	10 ~ 500VDC
	ON Resistance	0.8Ω	1.8Ω
	Rated load current	3.0A	1.0A
	Contact voltage drop	2.0VDC	
INPUT	Maximum input voltage	32VDC	
	Input voltage range	4 ~ 32VDC	
	Input current	10±3(mA)	
	Minimum operating voltage	3.0VDC	
	Turn off voltage	1.4VDC	
GENERAL	Dielectric withstand	1500VAC / rms / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	10ms	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	10g	

Block Diagram



* VC : VOLTAGE CIRCUIT

Application Circuit



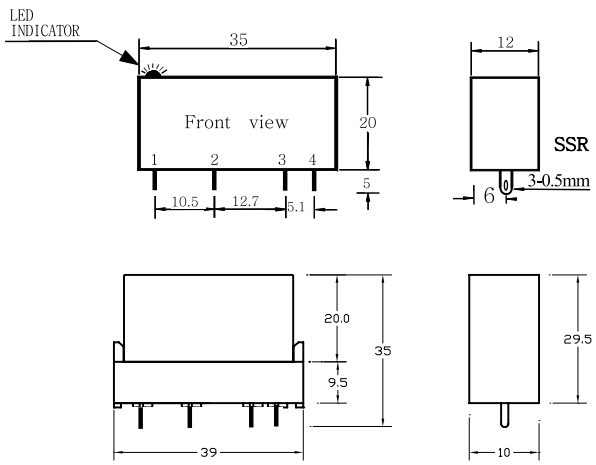
WYSC DC 1~10A (DC/DC Type)

PCB & Socket Type

소켓을 이용 모듈화 하여 사용할 수 있는 구조로 되어 있으며 전원 표시 램프(LED)가 부착되어 있어 POWER 입력부의 통전 상태를 알 수 있는 소형 SSR 입니다.

This product is structured in a way that it can be directly designed on PCB or modularized using sockets. This small SSR features LED lamp on the power input circuit can be power indicated.

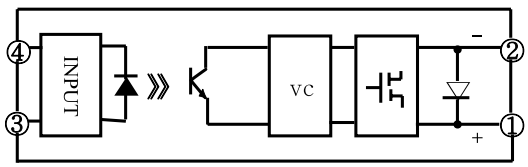
Dimension



Specifications

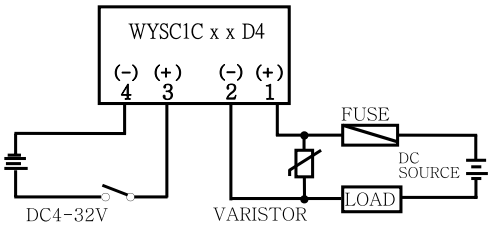
ITEM \ MODEL		WYSC1C203 / 501D4
OUTPUT	Rated voltage	200 / 500VDC
	Voltage range	200 / 500VDC
	ON Resistance	0.8 / 1.8Ω
	Rated load current	3.0 / 1.0A
	Contact voltage drop	2.0VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	10g

Block Diagram



* VC : VOLTAGE CIRCUIT

Application Circuit



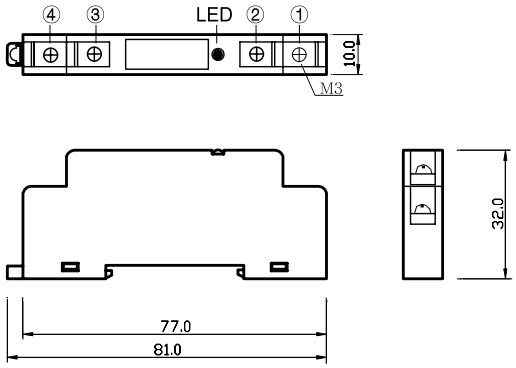
WYR DC 0.5A~10A (DC/DC Type)

Channel & DIN Rail Type

제품의 폭이 10mm로 SLIM 형이며 DIN RAIL에 장착 할수있는 구조로 취부시 작업성이 좋으며 접점부 확인용 램프 (LED)가 부착 되어있어 POWER 입력부의 통전 상태를 알수 있고 모듈화 하여 사용 하기 적합한 소형 SSR 입니다

Measuring 10mm in width, this product can be installed on the DIN rail. It features good workability and a contact check lamp (LED) through which power connection on the power input unit can be verified. This small SSR can be modularized for effective use.

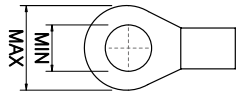
Dimension



Specifications

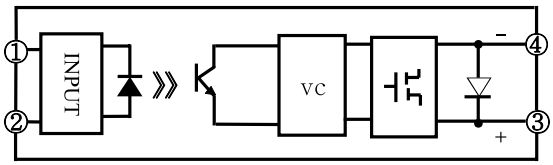
ITEM \ MODEL		WYR1C0310 / 0505 / 103 / 201 / 5005D4
OUTPUT	Rated voltage	30 / 50 / 100 / 200 / 500VDC
	Voltage range	5 ~ 30 / 5 ~ 50 / 5 ~ 100 / 5 ~ 200 / 5 ~ 500VDC
	Rated load current	10 / 5 / 3 / 1 / 0.5A
	Contact voltage drop	2.0VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	20g

Terminal



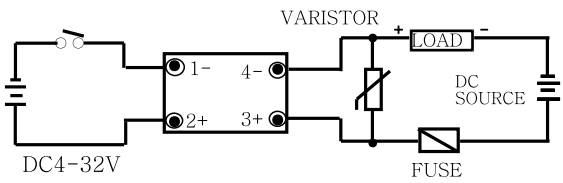
Input Ter : Max 6.2, Min 3
Output Ter : Max 6.2, Min 3

Block Diagram

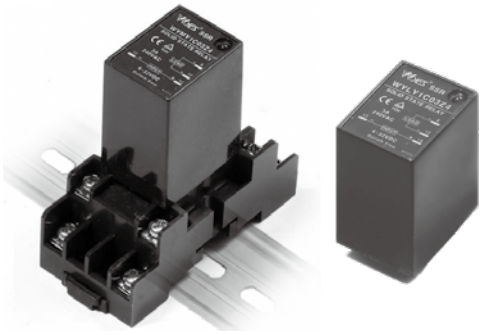


* VC : VOLTAGE CIRCUIT

Application Circuit



WYMY DC 200V 1~3A (DC/DC Type)

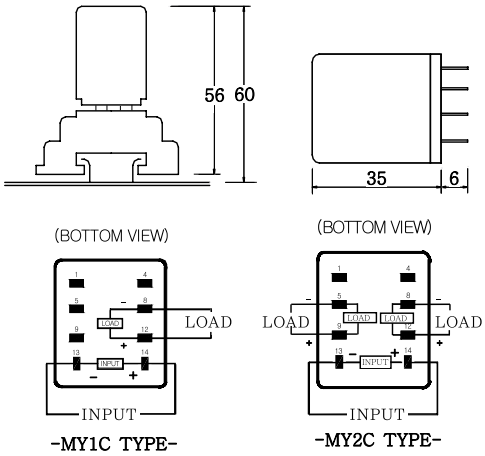


Socket & DIN Rail Type

범용 MY-TYPE 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 SINGLE(1회로) 및 DUAL(2회로) OUT PUT으로 구성되어있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착 되어 있고 DIN RAIL을 사용하여 모듈화 하여 사용 하기 적합한 DC/DC 소형 SSR 입니다.

This small SSR can be operated using sockets of ordinary MY-Type relays. It is composed of a single output (1 circuit) and dual output (2 circuit) type equipped with an LED lamp which the input circuit for power output indicated. And is suitable for modularization through the use DIN Rail.

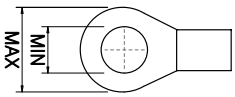
Dimension



Specifications

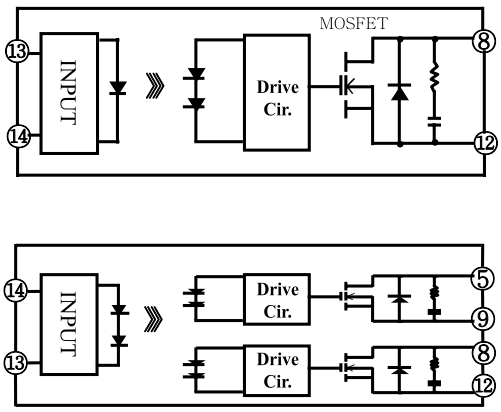
ITEM \ MODEL		WYMY1C203D4 (1CH) WYMY2C201D4 (2CH)
OUTPUT	Rated voltage	200VDC
	Voltage range	10 ~ 200VDC
	Rated load current	1P : 3A, 2P : 1A
	Contact voltage drop	2.0VDC
	leakage current	0.01 / 0.05A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	40g

Terminal

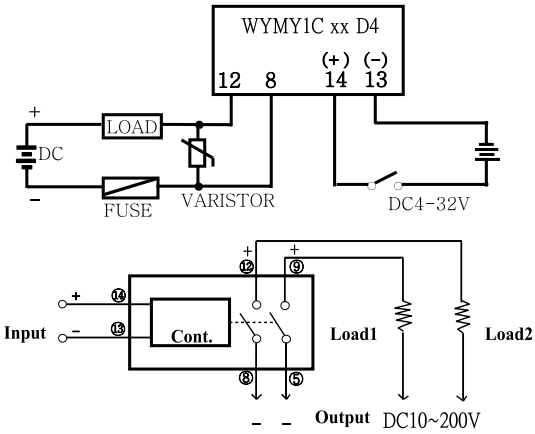


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

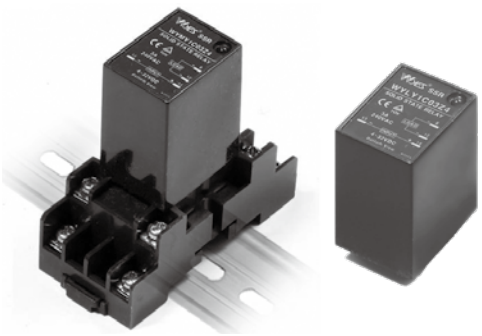
Block Diagram



Application Circuit



WYLY DC 200V 1~3A (DC/DC Type)

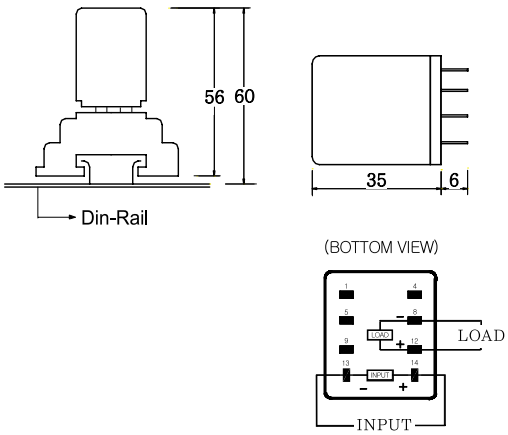


Socket & DIN Rail Type

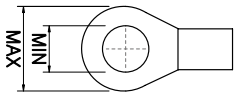
범용 LY-TYPE 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 SINGLE OUTPUT (1회로)으로 구성되어 있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착 되어 있고 DIN RAIL을 사용하여 모듈화 하여 사용 하기 적합한 소형 SSR 입니다.

This small SSR can be operated using sockets of ordinary LY-Type relays. It is composed of a single output (1 circuit) equipped with an LED lamp which the input circuit for power output indicated, and is suitable for modularization through the use DIN Rail.

Dimension



Terminal

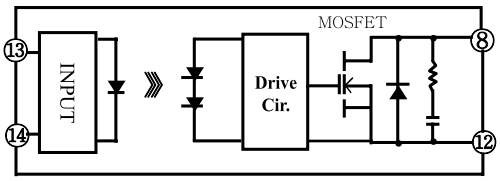


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

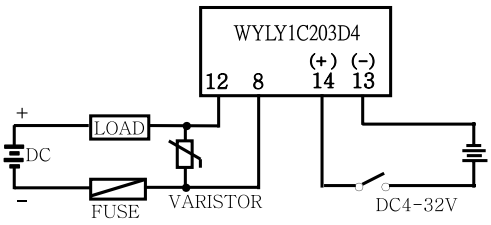
Specifications

ITEM \ MODEL		WYLY1C203D4 (1CH)
OUTPUT	Rated voltage	200VDC
	Voltage range	10 ~ 200VDC
	Rated load current	3.0A
	Contact voltage drop	2.0VDC
	leakage current	0.05A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	40g

Block Diagram



Application Circuit



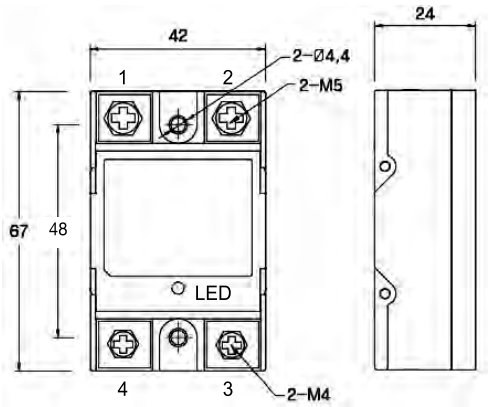
WYNSG Standard DC 200V 5~40A (DC/DC Type)

Standard Type

본 제품 시리즈는 CE 인증을 획득한 제품으로 DC10~200V, 5~40A의 용량을 가지고 있으며 일반 저항 및 유도성 부하에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 LED가 부착되어 있는 SSR 입니다.

These product series have acquired CE certification. They carry capacity of DC10~200V, 5~40A and are used on general resistive load and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

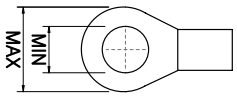
Dimension



Specifications

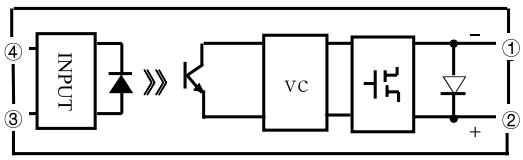
ITEM	MODEL	WYNSG1C205 / 210 / 220 / 230 / 240D4
OUTPUT	Rated voltage	200VDC
	Voltage range	10 ~ 200VDC
	ON Resistance	0.4 / 0.55 / 0.085 / 0.085 / 0.085Ω
	Rated load current	5.0 / 10 / 20 / 30 / 40A
	Contact voltage drop	2.0VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.1kg

Terminal



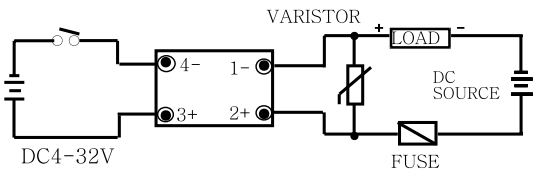
Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 5

Block Diagram



* VC : VOLTAGE CIRCUIT

Application Circuit



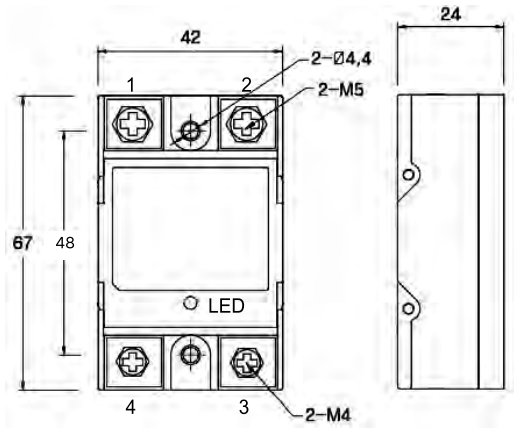
WYNSH DC 500V 5~20A (DC/DC Type)

Standard Type

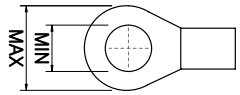
본 제품 시리즈는 CE 인증을 획득한 제품으로 DC10~500V, 5~20A의 용량을 가지고 있으며 일반 저항 및 유도성 부하에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 LED가 부착되어 있는 SSR 입니다.

These product series have acquired UL CE certification. They carry capacity of DC10~500V, 5~20A and are used on general resistive load and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

Dimension



Terminal

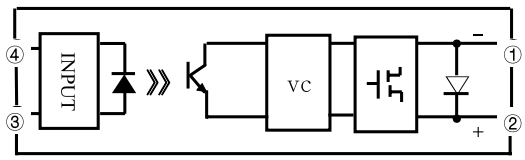


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 5

Specifications

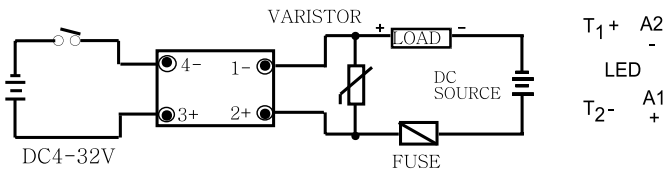
ITEM	MODEL	WYNSH1C505 / 510 / 520D4
OUTPUT	Rated voltage	500VDC
	Voltage range	10 ~ 500VDC
	ON Resistance	0.4 / 0.4 / 0.3Ω
	Rated load current	5.0 / 10 / 20A
	Contact voltage drop	2.0VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.1kg

Block Diagram

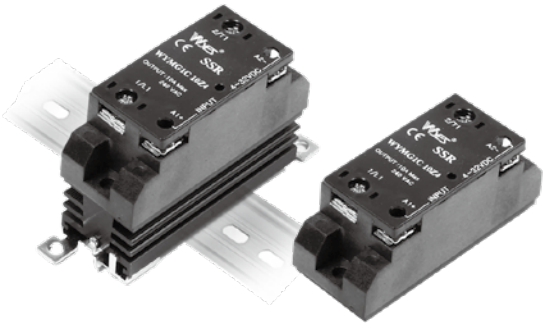


* VC : VOLTAGE CIRCUIT

Application Circuit



WYMS DC 50V 5~40A (DC/DC Type)

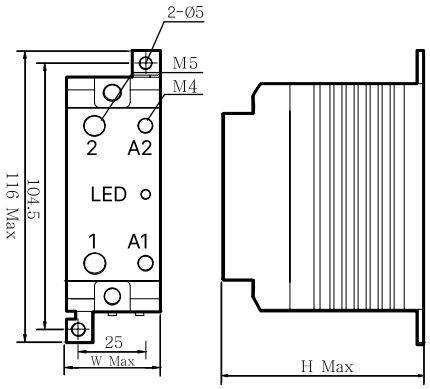


DIN 방열판일체형(SSR/Heat Sink Type)

SSR에 방열판을 붙여 일체화 시킨 제품으로 DC10~50V, 5~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This integral type SSR with self heat sink is a product with current capacity of DC10~50V, 5~40A. This product that can also be mounted on DIN Rail without attaching any another heat sink can be used effectively and conveniently.

Dimension



(mm)

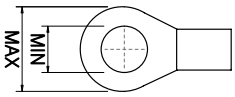
Cureent	5A	10A	20A	30A	40A
H(높이) x W(폭)	30 x 36	80 x 36	93 x 36	105 x 36	105 x 45

*5A : 방열판 및 DIN-Bracket 미부착

Specifications

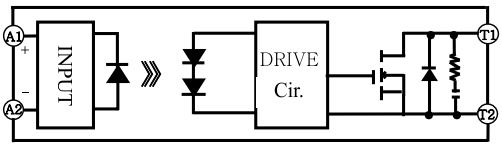
ITEM	MODEL	WYMS1C0505 / 0510 / 0520 / 0530 / 0540D4
OUTPUT	Rated voltage	50VDC
	Voltage range	10 ~ 50VDC
	Rated load current	5.0 / 10 / 20 / 30 / 40A
	Contact voltage drop	2.0 / 1.95 / 1.8 / 1.8 / 1.8VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.4kg

Terminal

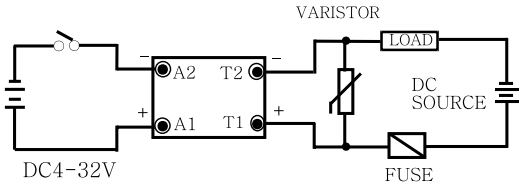


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

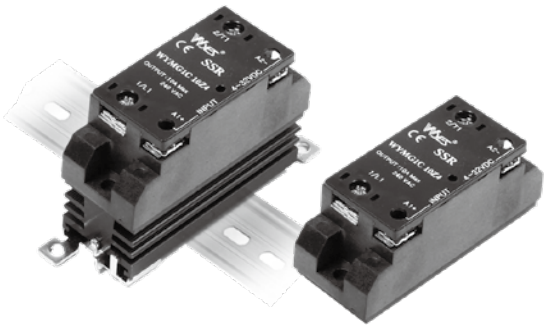
Block Diagram



Application Circuit



WYMS DC 100V 5~40A (DC/DC Type)

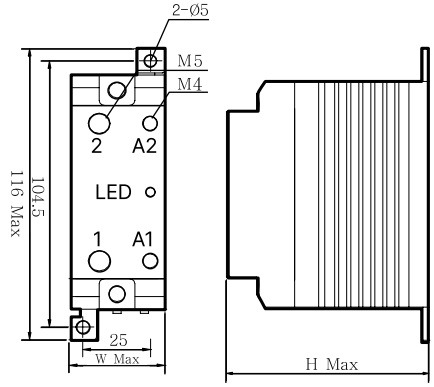


DIN 방열판일체형(SSR/Heat Sink Type)

SSR에 방열판을 붙여 일체화 시킨 제품으로 DC10~100V, 5~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This integral type SSR with self heat sink is a product with current capacity of DC10~100V, 5~40A. This product that can also be mounted on DIN Rail without attaching any another heat sink can be used effectively and conveniently.

Dimension

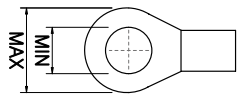


(mm)

Cureent	5A	10A	20A	30A	40A
H(높이) x W(폭)	30 x 36	80 x 36	93 x 36	105 x 36	105 x 45

*5A : 방열판 및 DIN-Bracket 미부착

Terminal

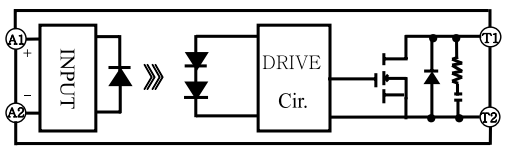


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

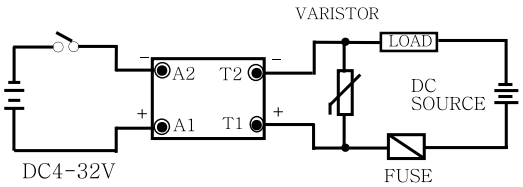
Specifications

ITEM \ MODEL		WYMS1C105 / 110 / 120 / 130 / 140D4
OUTPUT	Rated voltage	100VDC
	Voltage range	10 ~ 100VDC
	Rated load current	5.0 / 10 / 20 / 30 / 40A
	Contact voltage drop	2.0VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.4kg

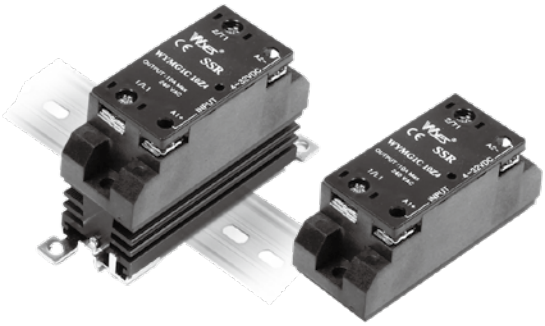
Block Diagram



Application Circuit



WYMS DC 200V 5~20A (DC/DC Type)

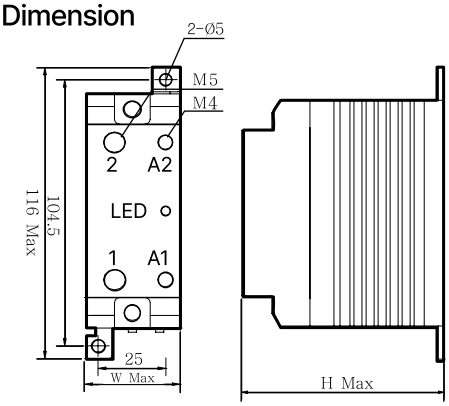


DIN 방열판일체형(SSR/Heat Sink Type)

SSR에 방열판을 붙여 일체화 시킨 제품으로 DC10~200V, 5~20A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This integral type SSR with self heat sink is a product with current capacity of DC10~200V, 5~20A. This product that can also be mounted on DIN Rail without attaching any another heat sink can be used effectively and conveniently.

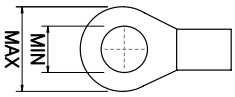
Dimension



(mm)

Cureent	5A	10A	20A
H(높이) x W(폭)	80 x 36	93 x 36	105 x 36

Terminal

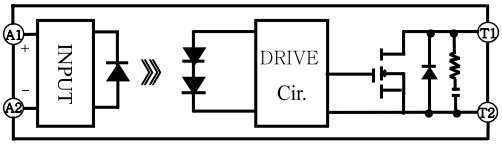


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

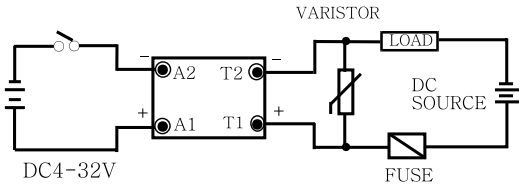
Specifications

ITEM \ MODEL		WYMS1C205 / 210 / 220D4
OUTPUT	Rated voltage	200VDC
	Voltage range	10 ~ 200VDC
	Rated load current	5.0 / 10 / 20A
	Contact voltage drop	2.0 / 1.95 / 1.8VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.4kg

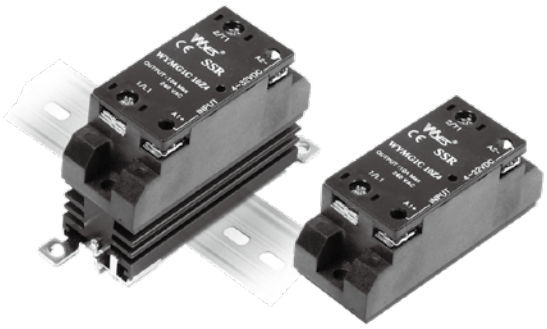
Block Diagram



Application Circuit



WYMS DC 500V 5~20A (DC/DC Type)

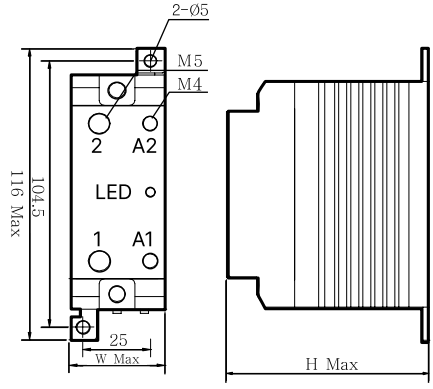


DIN 방열판일체형(SSR/Heat Sink Type)

SSR에 방열판을 붙여 일체화 시킨 제품으로 DC10~500V, 5~20A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This integral type SSR with self heat sink is a product with current capacity of DC10~500V, 5~20A. This product that can also be mounted on DIN Rail without attaching any another heat sink can be used effectively and conveniently.

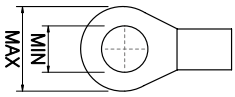
Dimension



(mm)

Cureent	5A	10A	20A
H(높이) x W(폭)	80 x 36	93 x 36	105 x 36

Terminal

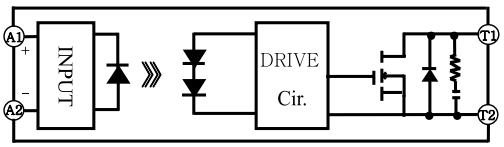


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

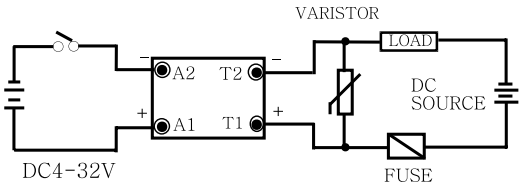
Specifications

ITEM \ MODEL		WYMS1C505 / 510 / 520D4
OUTPUT	Rated voltage	500VDC
	Voltage range	10 ~ 500VDC
	Rated load current	5.0 / 10 / 20A
	Contact voltage drop	2.0 / 1.95 / 1.8VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	0.4kg

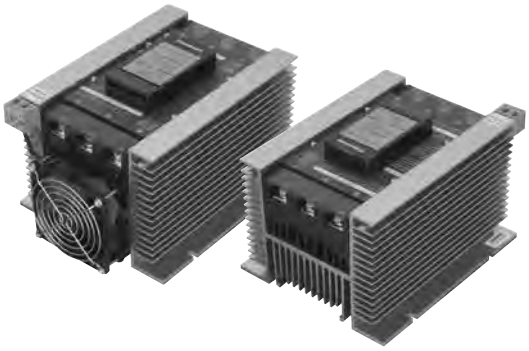
Block Diagram



Application Circuit



WYFMH DC 100V, 50~150A (DC/DC Type)

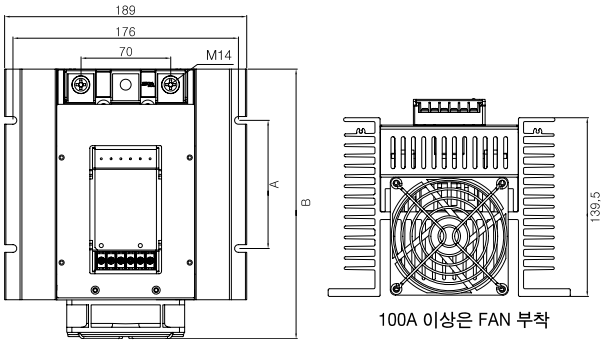


방열판 일체형 (SSR / FAN Heat Sink Type)

SSR에 방열판을 붙여 일체화 시킨 제품으로 별도의 방열판을 부착하지 않고 일체화 시킨 SSR 입니다.

This product with self heat sink is a product. The product has integrated heat sink without having to install any another heat sink

Dimension



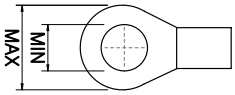
(mm)

용량	A	B	FAN
50~75A	100mm	180mm	x
100A	100mm	205mm	o

Specifications

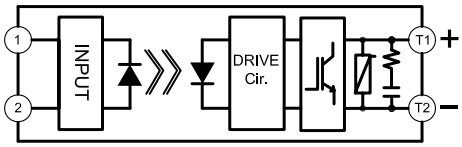
ITEM	MODEL	WYFMH1C150 / 175 / 1100D4
OUTPUT	Rated voltage	100VDC
	Voltage range	5 ~ 100VDC
	Rated load current	50 / 75 / 100A
	Contact voltage drop	2.15VDC
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / rms / 1Min
	Insulation resistance	500VDC / 100MΩ
	Response time	10ms
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	4.7kg / 4.8kg

Terminal

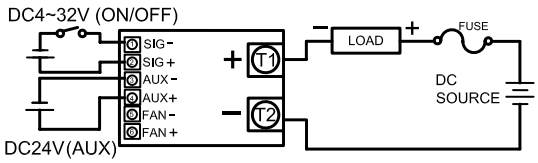


Signal Ter : Max 6.2, Min 3
Main Ter : Max 20, Min 8

Block Diagram



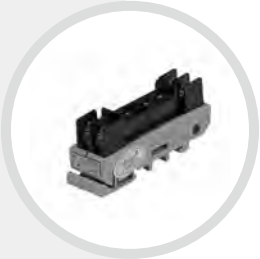
Application Circuit

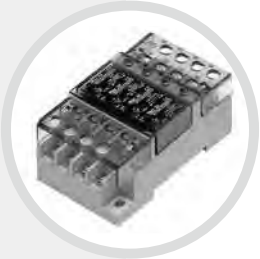


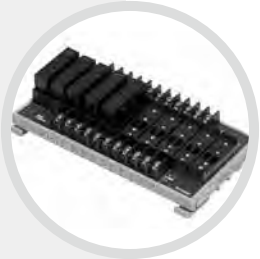
SSR용 소켓 홀더
Socket Holder for SSR

•SSR용 소켓 홀더 (Socket Holder for SSR) ····· 294

•방열판 (Heat Sink) ····· 297







WYGA, WYGB Socket

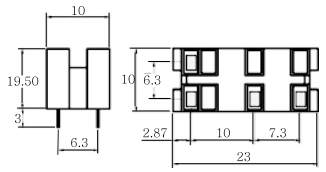
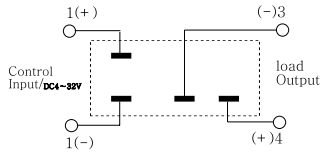
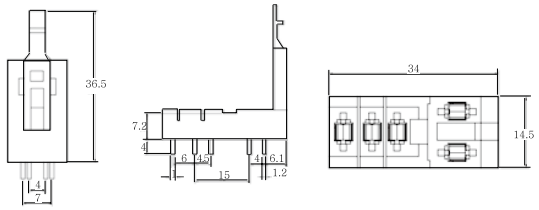
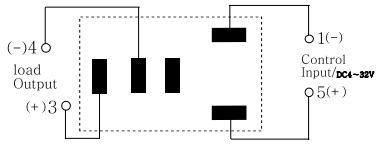
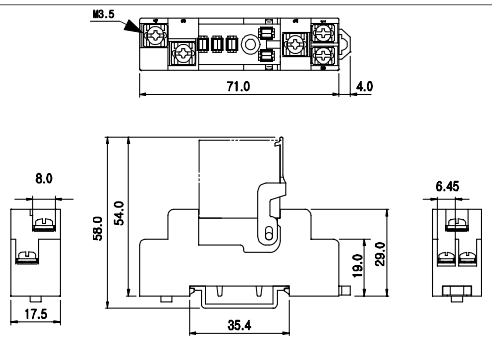
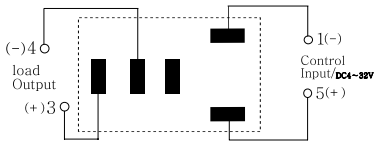
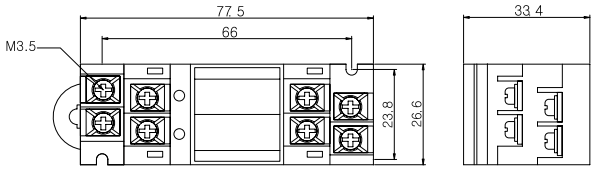
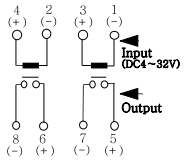
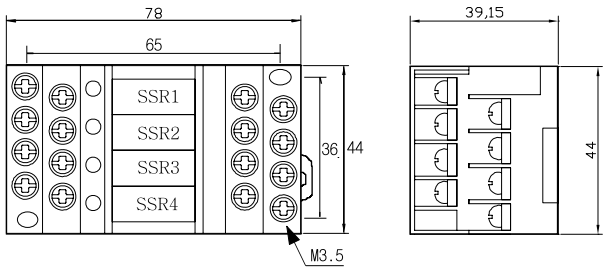
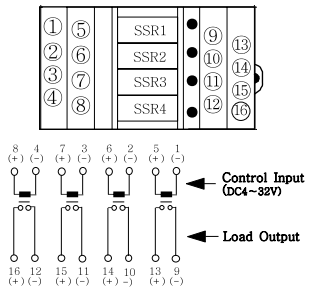
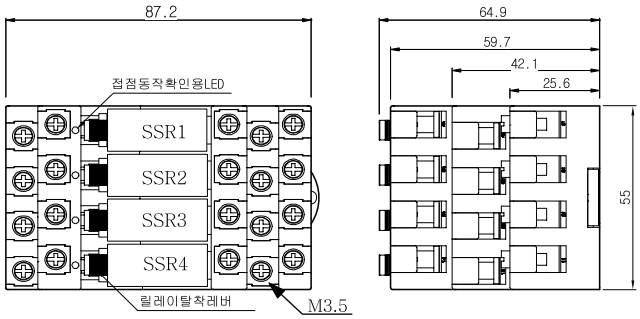
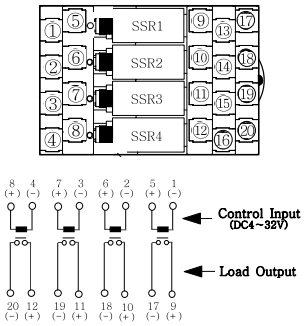
- GA－1P PCB Socket
- GB－1P PCB Socket
- GB－1P DIN Rail Socket
- GB－1P DIN Rail Socket
- GA－2P DIN Rail Socket
- GA－4P DIN Rail Socket
- GB－4P DIN Rail Socket

Module Socket

- 1－PIN
- 2－PIN
- 4－PIN
- 6－PIN
- 8－PIN
- 10－PIN
- 16－PIN

소켓홀더

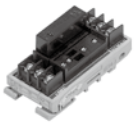
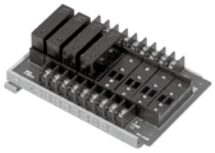
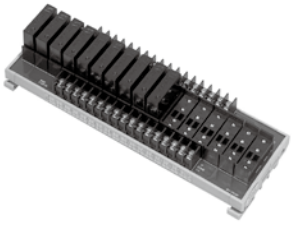
WYGA, GB Socket

MODEL No. (SOCKET)	OUT VIEW	CONNECTION DIAGRAM
WYGA－1P1		
WYGB－1P1		
WYGB－1PD		
WYGA－1P2		
WYGA－1P4		
WYGB－1P4		

출력단자가 교류(AC)인 경우 극성 없음 (It is non-polar in case of AC)

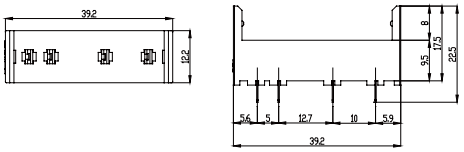
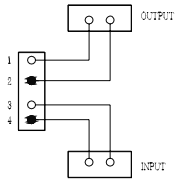
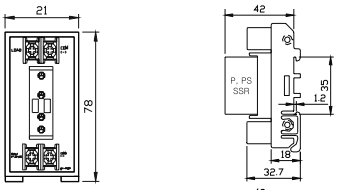
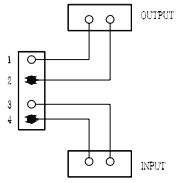
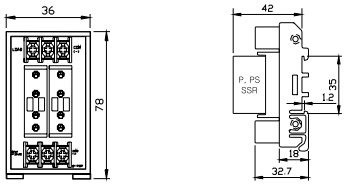
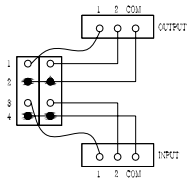
소켓홀더

Module Socket

CIRCUIT	OUT VIEW	MODEL No.	
1p			WY－PSZ3
1p			WY－PS1P
2p		(－) COM	WY－PS2P-NN
		(＋) COM	WY－PS2P-PP
4p		(－) COM	WY－PS4P－NN
		(＋) COM	WY－PS4P－PP
6p		(－) COM	WY－PS6P－NN
		(＋) COM	WY－PS6P－PP
8p		(－) COM	WY－PS8P－NN
		(＋) COM	WY－PS8P－PP
10p		(－) COM	WY－PS10P－NN
		(＋) COM	WY－PS10P－PP
16p		(－) COM	WY－PS16P－NN
		(＋) COM	WY－PS16P－PP

소켓홀더

Module Socket

DIMENSION	CONNECTION DIAGRAM	MODEL No.	
			WY−PSZ3
			WY−PS1P
		(−) COM	WY−PS2P−NN
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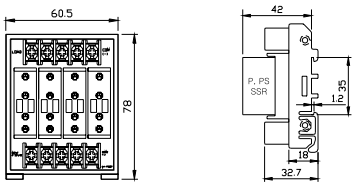	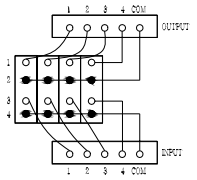	(−) COM	WY−PS4P−NN
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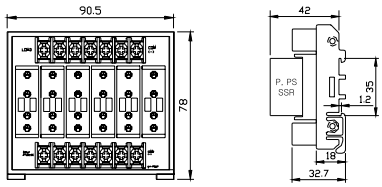
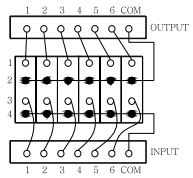
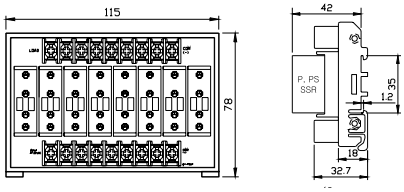
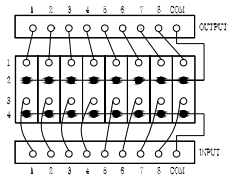
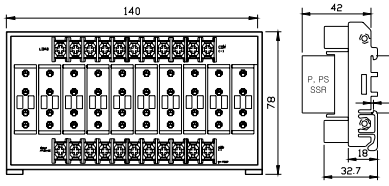
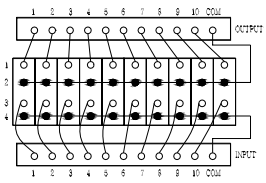
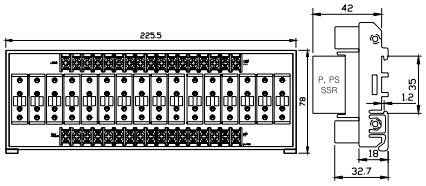
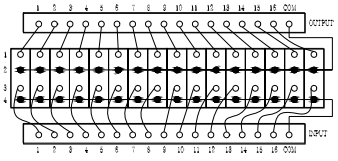
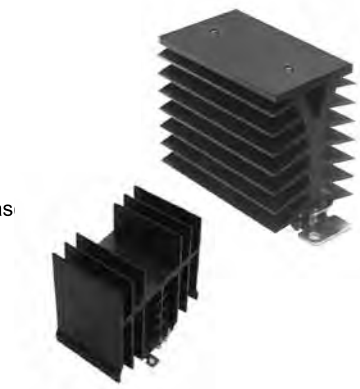
		(−) COM	WY−PS6P−NN
		(+) COM	WY−PS6P−PP
		(−) COM	WY−PS8P−NN
		(+) COM	WY−PS8P−PP
		(−) COM	WY−PS10P−NN
		(+) COM	WY−PS10P−PP
		(−) COM	WY−PS16P−NN
		(+) COM	WY−PS16P−PP

방열판

1. FEATURE



● SSR용 표준 방열판은 다음과 같습니다.
Standard heat sink used on SSR are as follows:

- ● HS-A1010 : 1Ø 10A Load
- ● HS-A2020 : 1Ø 20A Load
- ● HS-A3040 : 1Ø 30A～40A Load
- ● HS-XXX : 단상, 삼상 공용으로 사용가능 (Can be used on both single-phase and 3-phas
- ● 3PHASE : 120mm/10A, 150mm/20A, 200mm/30A, 250mm/40A, 300mm/50A
- ● H1M-XXX : 1PHASE LOAD
  - · 50mm/40A, 70mm/50A, 90mm/60A, 110mm/80A
- ● H3M-XXX : 3PHASE LOAD
  - · 80mm/10～20A, 110mm/30A, 140mm/40A

2. HEAT SINK 사용시 주의사항 ⚠ Caution

● 표준 방열판을 사용하여도 주위온도가 상승하거나 통풍이 되지 않으면 SSR 파손을 가져올 수 있으므로 주의 바랍니다.(주위온도 : 40°이상)
-If ambient temperature rises or if there is no ventilation even when standard heat sink are used, it may cause damage to SSR. Take precautions (If ambient temperature is 40 °C or higher)

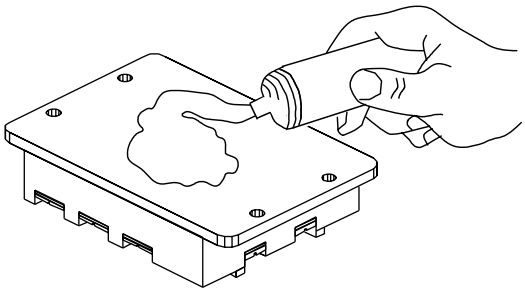
● 보통 SSR 소자의 최대온도는 125°이상일 때 파손되며 방열판의 온도가 80°이상일 때 소자의 온도는 125°에 가까운 온도가 되므로 운전 중 반드시 방열판 온도를 측정하여 주시기 바랍니다.
- In general, power element of SSR is damaged when the maximum temperature of the 125 °C or higher. Since the power element temperature is close to 125 °C when the temperature of the surface of heat sink is 80 °C or higher, check the temperature of heat sink too during operation.

● 표준 방열판에 SSR을 취부할 때는 열 접촉이 원만히 이루어지도록 열전도성 구리스나 SILPAD를 사용하여 주시기 바랍니다.
-When mounting SSR on the standard heat sink, use thermal-conductive grease or SILPAD to ensure satisfactory thermal contact.

● 진동에 풀리지 않도록 규정된 개소를 전부 볼트로 완전히 고정하여 주십시오.
-To prevent bolts from becoming loose due to vibration, tighten up bolts in all prescribed places.

● 단열성 판제 (목판, 프라스틱, 고무)에는 사용하지 말고 반드시 표준 방열기를 이용하여 접촉면에 아래 그림과 같이 방열 구리스를 도포한 후 부착하여 주십시오.
-Do not use on the thermal isolation material (Wood, plastic or rubber) must apply the thermal grease on the contact surface as shown in Figure below and mounting on the standard heat sink.

※ 그림과 같이 방열 실리콘 구리스를 방열기와 SSR 밑면에 골고루 도포하여 고정한 후 방열기의 골이 상하로 향하도록 장치에 고정하십시오.
-As shown in Figure, evenly apply thermal conductive silicon grease to the heat sink and the bottom of SSR, and fix it in a way that vertical of heat sink fin.

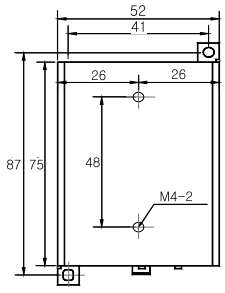


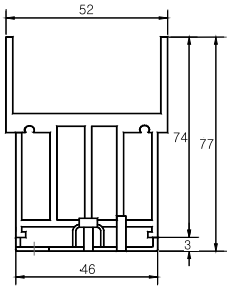
· 권장 실리콘 구리스 (Suggested silicon grease) : TOSHIBA YG6111
신예츠(shinetsu) G766

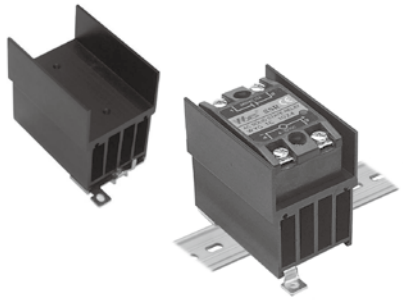
DIN-Rail 겸용 방열판

Dimension

HS – A1010 1Ø 10A–DIN Rail type

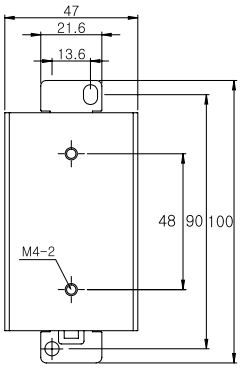


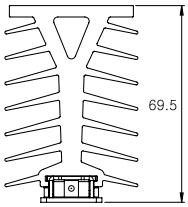


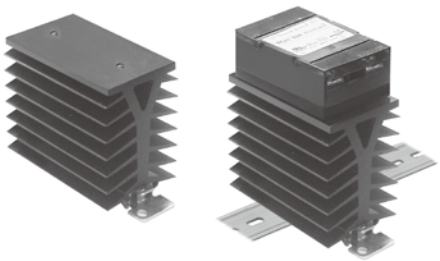


※ Weight : 0.23 kg

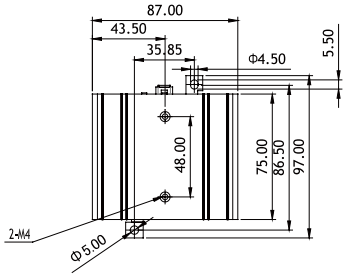
HS–A1040 1Ø 10~40A–DIN RAIL TYPE

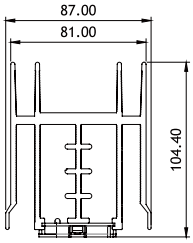


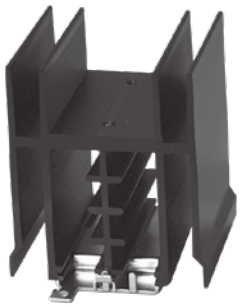




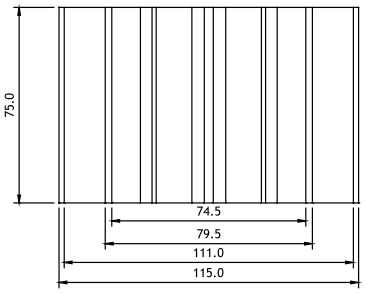
※ Weight : 0.27 kg

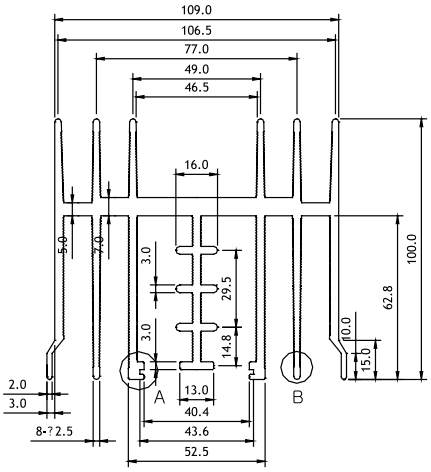


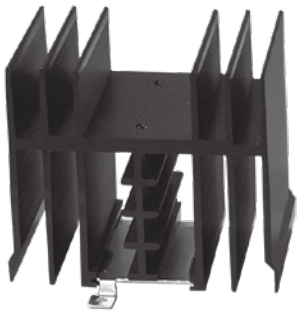




※ Weight : 0.45 kg





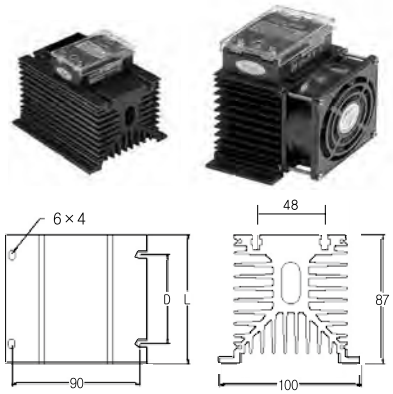


※ Weight : 0.58 kg

방열판

Dimension

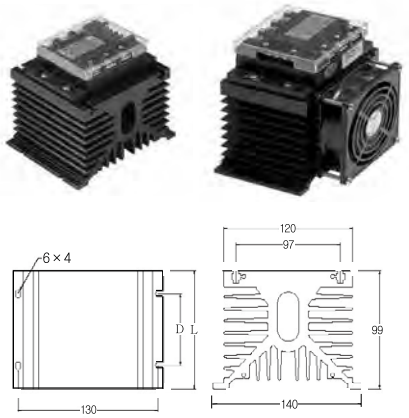
H1M - XXX(mm)　　1Ø 40~80A



80X80X25mm
CFM morethan30

MODEL	H1M−50	H1M−70	H1M−90	H1M−110
길이(Leangth) L	50mm	70mm	90mm	110mm
고정홀치수(D)	Center(중앙)	50mm	70mm	60mm
1Phase SSR Rating	40A	50A	60A	80A
FAN − SSR Rating	50~60A	80A	−	−
Weight	1.6kg	1.8kg	1.2kg	1.5kg

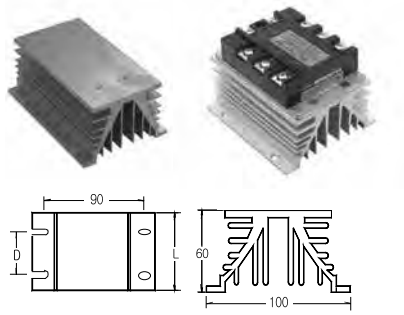
H3M - XXX(mm)　　3Ø 10~80A



FAN : 92X92X25mm
CFM more than 30

MODEL	H3M−80	H3M−110	H3M−140
길이(Leangth) L	80mm	100mm	140mm
고정홀치수(D)	60mm	60mm	90mm
3Phase SSR Rating	10~20A	30A	40A
FAN SSR Rating	30~50A	60A	80A
Weight	1.1kg	1.5kg	1.9kg

HS -XXX (mm)　　3Ø 10~30A



MODEL	HS−120	HS−150	HS−200	HS−250	HS−300
길이(Leangth) L	120mm	150mm	200mm	250mm	300mm
고정홀치수(D)	70mm	100mm	150mm	200mm	250mm
3Phase SSR Rating	10A	20A	30A		
Weight	0.6kg	0.7kg	0.85kg	1.15kg	1.35kg

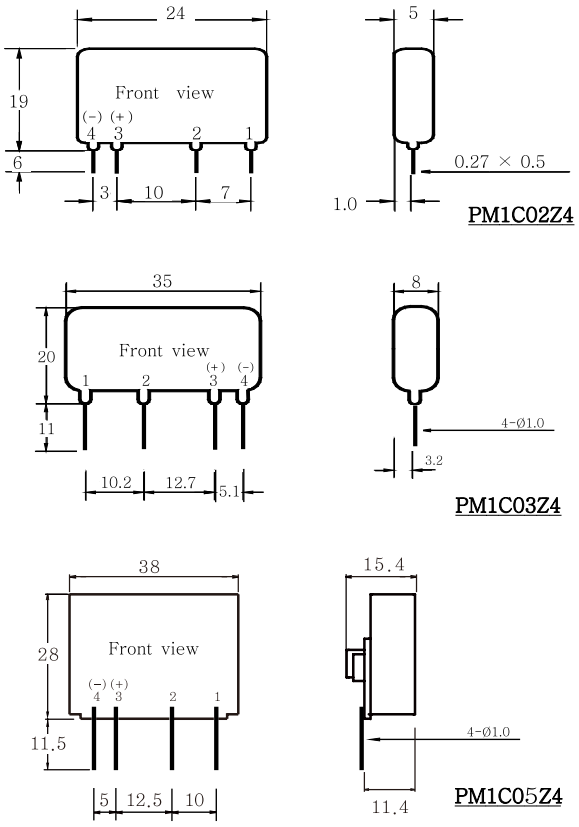
1Ø WYPM AC220V 2A/3A/5A (DC/AC Type)

PCB Type

Hybrid화한 제품으로 내구 및 신뢰성이 좋은 구조로 좁은 공간 에서도 PCB에 직접 삽입하여 사용 할 수있으며 진동 충격에 강한 소형 Slim형 SSR 입니다.

This hybrid product features excellent durability and reliability. This compact, slim SSR can directly be inserted into PCB in a narrow space, and is highly resistant to impact and/or vibration.

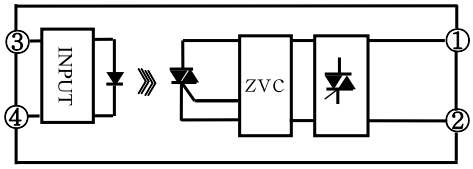
Dimension



Specifications

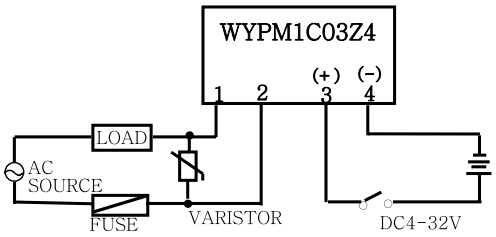
ITEM	MODEL	WYPM1C02Z4	WYPM1C03Z4	WYPM1C05Z4
OUTPUT	Rated voltage	220VAC		
	Voltage range	90 ~ 240VAC		
	Non repetitive peak voltage	600V		
	Rated load current	2.0A(rms1.0A)	3.0A(rms1.5A)	5.0A(rms2.5A)
	Frequency	50 / 60Hz		
	Peak surge current	31.5A		
	leakage current	2.0mA(MAX)		
	Contact voltage drop	1.5V(MAX)		
	Minimum operating current	0.1A		
INPUT	Maximum input voltage	32V		
	Input voltage range	4 ~ 32V		
	Input current	10±3(mA)		8±3(mA)
	Minimum operating voltage	3.0V		
	Turn off voltage	1.4V		
GENERAL	Dielectric withstand	1500VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	Z4 : 8.3±1ms		
	Circuit control	Z4 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	10g		20g

Block Diagram

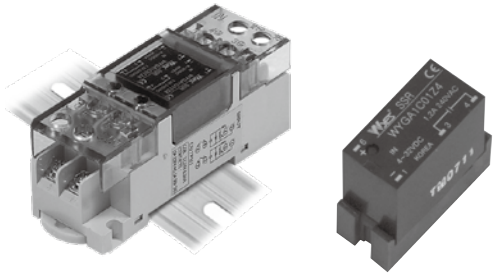


* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYGA AC220V 1.2A (DC/AC Type)

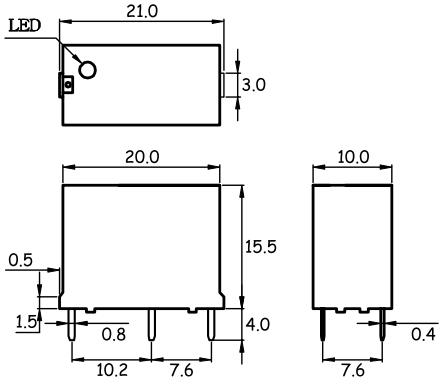


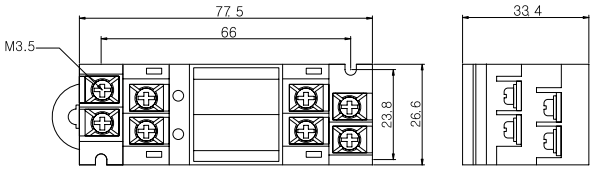
PCB & DIN Rail Type

초소형으로 PCB에 직접 설계하여 사용할수 있는 구조와 DIN Rail에 부착 사용할 수 있는 구조로 1회로 및 2회로로 된 소켓형 SSR 입니다.

This 1-circuit and 2-circuit sub-miniature socket-type SSR features a structure where it can directly be designed and used on PCB and a structure where it can be attached and used on DIN Rail.

Dimension

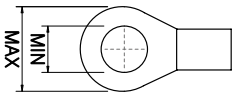




Specifications

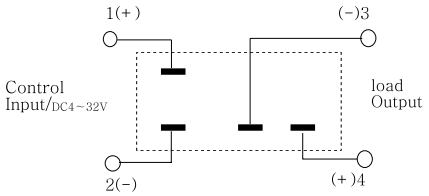
ITEM	MODEL	WYGA1C01Z4	WYGA2C01Z4
OUTPUT	Output contact	1a	2a
	Rated voltage	220VAC	
	Voltage range	90～ 240VAC	
	Non repetitive peak voltage	800V	
	Rated load current	1.2A	
	Frequency	50 / 60Hz	
	Peak surge current	8A	
	leakage current	0.17mA(MAX)	
	Contact voltage drop	2.04V(MAX)	
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	
	Input voltage range	4 ～ 32VDC	
	Input current	10±3(mA)	
	Minimum operating voltage	2.1VDC	2.0VDC
	Turn off voltage	1.9VDC	
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	Z4 : 8.3±1ms	
	Circuit control	Z4 : Zero cross type	
	Operating temperature	−10 ～ +60°C	
	Storage temperature	−20 ～ +80°C	
	Weight	60g	

Terminal

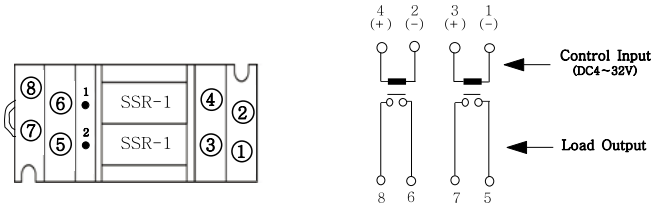


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

1P Connection Diagram



2P Connection Diagram



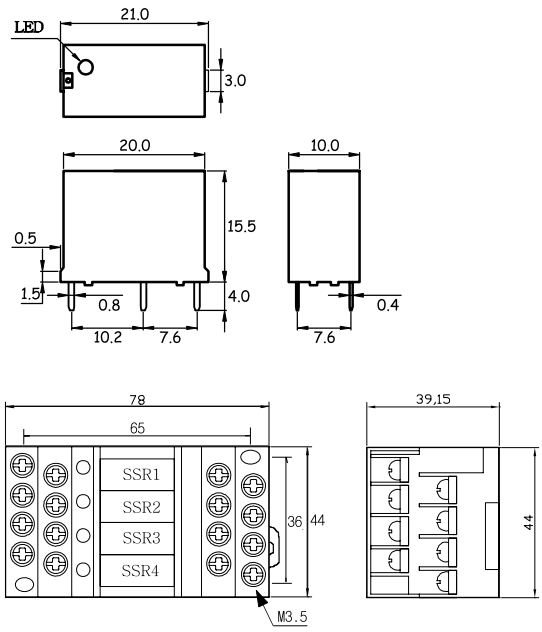
1Ø WYGA AC220V 1.2A (DC/AC Type)

PCB & DIN Rail Type

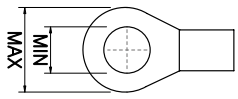
초소형으로 PCB에 직접 설계하여 사용할수 있는 구조와 DIN Rail에 부착 사용할 수 있는 구조로 1회로 및 4회로로 된 소켓형 SSR 입니다.

This 1-circuit and 4-circuit sub-miniature socket-type SSR features a structure where it can directly be designed and used on PCB and a structure where it can be attached and used on DIN Rail.

Dimension



Terminal

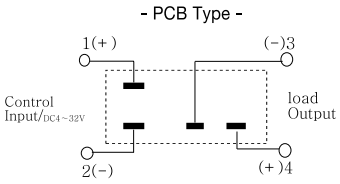


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

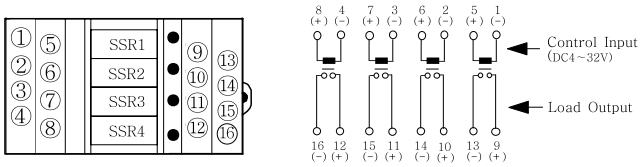
Specifications

ITEM \ MODEL		WYGA4C01Z4
OUTPUT	Output contact	4a
	Rated voltage	220VAC
	Voltage range	90 ~ 240VAC
	Non repetitive peak voltage	800V
	Rated load current	1.2A
	Frequency	50 / 60Hz
	Peak surge current	8A
	leakage current	0.17mA(MAX)
	Contact voltage drop	2.04V(MAX)
	Minimum operating current	0.1A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	2.0VDC
	Turn off voltage	1.9VDC
GENERAL	Dielectric withstand	1500VAC / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	Z4 : 8.3±1ms
	Circuit control	Z4 : Zero cross type
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	60g

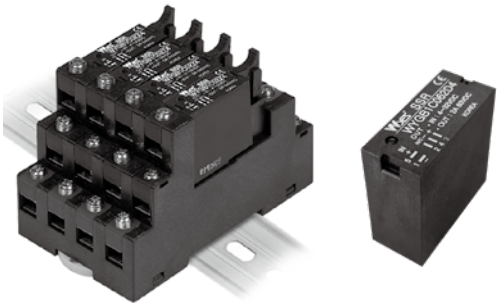
1P Connection Diagram



4P Connection Diagram



1Ø WYGB AC220V 2A DC (DC/AC Type)

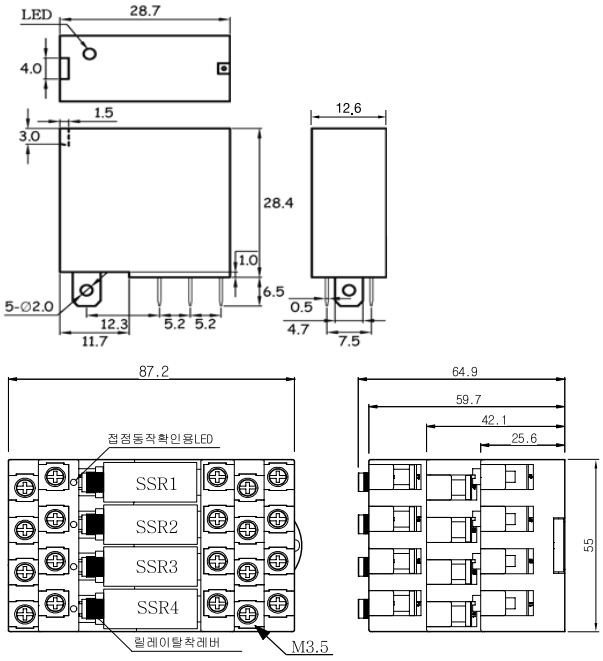


PCB & DIN Rail Type

소형 제품으로 PCB 삽입용 소켓과 DIN Rail 취부형으로 1회로, 4회로로 구성되어 있으며 SSR을 탈부착할 수 있어 설치 및 개보수 점검시 용이한 구조로 되어 있습니다.

This miniature product equipped with PCB insertion sockets and DIN Rail is composed of 1-circuit and 4-circuits. Since SSR can be installed or removed, it is easy to install, repair or inspect the equipment.

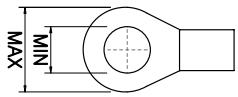
Dimension



Specifications

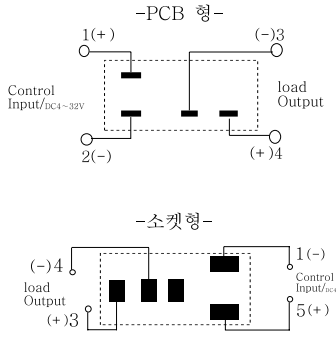
ITEM \ MODEL		WYGB1C02Z4	WYGB4C02Z4
OUTPUT	Output contact	1a	4a
	Rated voltage	220VAC	
	Voltage range	90 ~ 240VAC	
	Non repetitive peak voltage	800V	
	Rated load current	2A	
	Frequency	50 /60Hz	
	Peak surge current	8A	
	leakage current	0.17mA(MAX)	
	Contact voltage drop	2.04V(MAX)	
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	
	Input voltage range	4 ~ 32VDC	
	Input current	10±3(mA)	
	Minimum operating voltage	2.0VDC	
	Turn off voltage	1.8VDC	
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	Z4 : 8.3±1ms	
	Circuit control	Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	10g	

Terminal

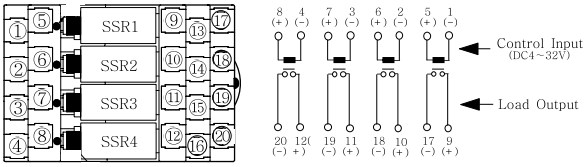


Input Ter : Max 8, Min 3.5
Output Ter : Max 8, Min 3.5

1P Connection Diagram



4P Connection Diagram



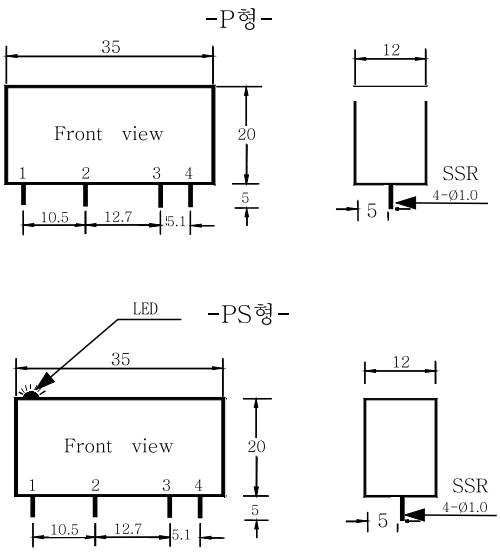
1Ø WYPS AC220V AC3A DC (DC/AC Type)

PCB Type

PCB에 직접 설계 모듈화 하여 사용 할수있는 구조로 되어 있으며 AC90~240V 계통에 사용되는 소형 SSR 입니다.

This product is structured in such a way that it can be designed and modularized directly on PCB. This small SSR is used on AC90~240V system.

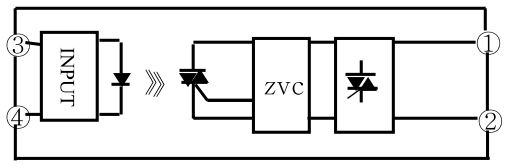
Dimension



Specifications

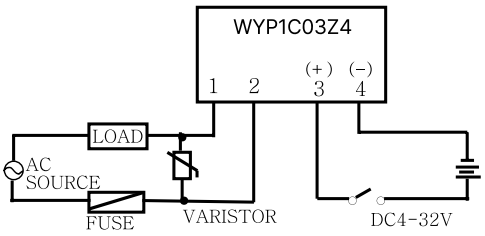
ITEM	MODEL	WYP1C03Z4	WYPS1C03Z4	WYPS1C201V4
OUTPUT	Rated voltage	220VAC		AC / DC220V
	Voltage range	90 ~ 240VAC		AC / DC5 ~ 240V
	Non repetitive peak voltage	600V		400VAC.DC
	Rated load current	3.0A(rms1.5A)		1.0A(rms0.6A)
	Frequency	50 / 60Hz		N / A
	Peak surge current	31.5A		6A
	leakage current	3.0mA(MAX)		0.1mA(MAX)
	Contact voltage drop	1.5V(MAX)		3.0V(MAX)
	Minimum operating current	0.1A		
INPUT	Maximum input voltage	32VDC		
	Input voltage range	4 ~ 32VDC		
	Input current	10±3(mA)		
	Minimum operating voltage	3.0VDC		
	Turn off voltage	1.4VDC		
GENERAL	Dielectric withstand	1500VAC / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	Z4 : 8.3±1ms		
	Circuit control	Z4 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	10g		

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



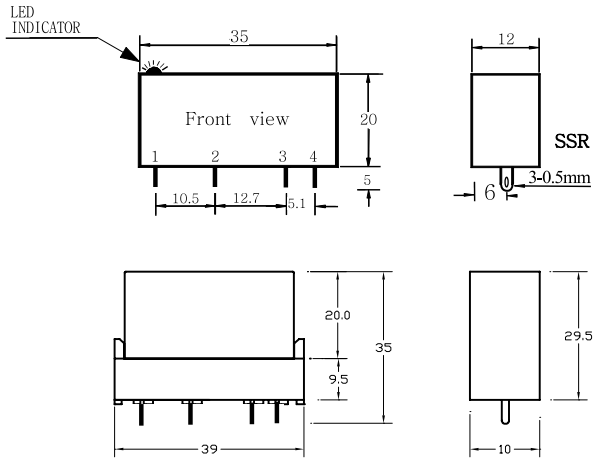
1Ø WYSC AC, AC/DC220V AC3A (DC/AC, DC/AC DC Type)

PCB & Socket Type (AC, AC/DC 겸용)

PCB에 직접 설계 또는 소켓을 이용 모듈화 하여 사용할 수 있는 구조로 되어 있으며 전원 표시 램프(LED)가 부착되어 있어 POWER 입력부의 통전 상태를 알 수 있는 소형 SSR 입니다.

This product is structured in a way that it can be directly designed on PCB or modularized using sockets. This small SSR is with LED power lamp for output power indicating.

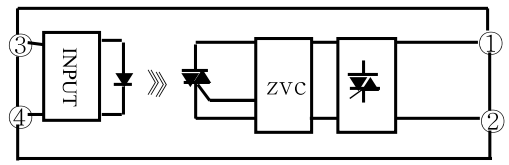
Dimension



Specifications

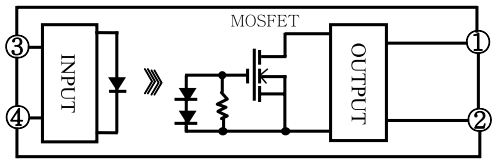
ITEM \ MODEL		WYSC1C03Z4	WYSC1C201V4
OUTPUT	Rated voltage	220VAC	AC / DC220V
	Voltage range	90 ~ 240VAC	AC / DC5 ~ 240V
	Non repetitive peak voltage	600VAC	400VAC.DC
	Rated load current	3.0A(rms1.5A)	1.0A(rms0.6A)
	Frequency	50 / 60Hz	N / A
	Peak surge current	31.5A	6A
	leakage current	3.0mA(MAX)	0.1mA(MAX)
	Contact voltage drop	1.5V(MAX)	3.0V(MAX)
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	
	Input voltage range	4 ~ 32VDC	
	Input current	10±3(mA)	
	Minimum operating voltage	3.0VDC	
	Turn off voltage	1.4VDC	
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	V4 : 8.3±1ms	
	Circuit control	Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	10g	

Block Diagram



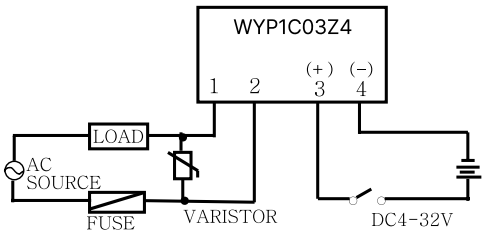
WYSC1C03Z4

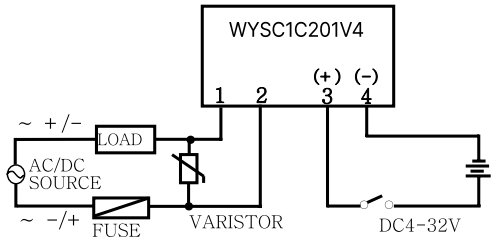
* ZVC : ZERO CROSS VOLTAGE CIRCUIT



WYSC1C201V4

Application Circuit





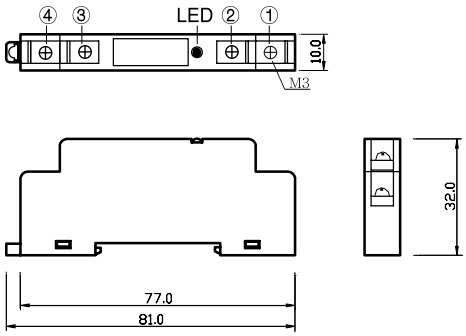
1Ø WYR AC220V/440V 1A (DC/AC, AC/AC Type)

Channel & DIN Rail Type

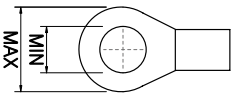
제품의 폭이 10mm로 DIN RAIL에 장착 할수있는 구조로 작업성이 좋으며 접점부 확인용 램프 (LED) 가 부착되어 있어 Power 입력부의 통전 상태를 알수있고 모듈화 하여 사용 하기 적합한 소형 SSR 입니다

Measuring 10mm in width, this product can be installed on the DIN rail. It features good workability and a contact check lamp (LED) through which power connection on the power input unit can be verified. This small SSR can be modularized for effective use.

Dimension



Terminal

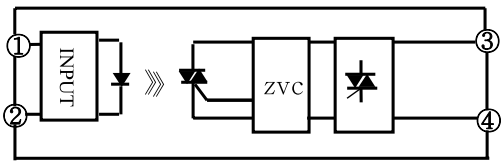


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

Specifications

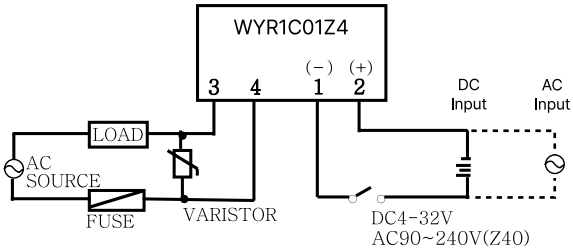
ITEM	MODEL	WYR1C01Z4 WYRH1C01Z4	WYR1C01Z40 WYRH1C01Z40
OUTPUT	Rated voltage	220(R) / 440VAC(RH)	
	Voltage range	90 ~ 240VAC(R) 90 ~ 480VAC(RH)	
	Non repetitive peak voltage	600(R) / 800(RH)	
	Rated load current	1A	
	Frequency	50 / 60Hz	
	Peak surge current	50A	
	leakage current	0.4mA	
	Contact voltage drop	1.5V(MAX)	1.8V(MAX)
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC
	Input current	10±3(mA)	AC240V / 8±3(mA)
	Minimum operating voltage	3.0VDC	45VAC
	Turn off voltage	1.4VDC	20VAC
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	8.3±1ms	30ms(MAX)
	Circuit control	Z40, Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	20g	

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



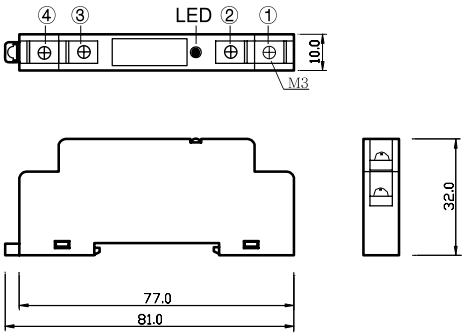
1Ø WYR AC220V/440V 1A (DC/AC, AC/AC Type)

Channel & DIN Rail Type

제품의 폭이 10mm로 DIN RAIL에 장착 할수있는 구조로 작업성이 좋으며 출력부가 무극성으로 AC/DC 겸용으로 사용가능하고 접점부 확인용 램프 (LED) 가 부착되어 있어 Power 입력부의 통전 상태를 알수있고 모듈화 하여 사용 하기 적합한 소형 SSR 입니다

Measuring 10mm in width, this product can be installed on the DIN rail. It features good workability and a contact check lamp (LED) through which power connection on the power input unit can be verified. This small SSR can be modularized for effective use.

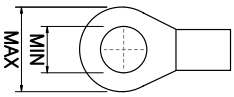
Dimension



Specifications

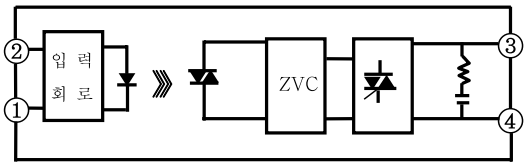
ITEM \ MODEL		WYR1C201V4
OUTPUT	Rated voltage	200VAC / DC
	Voltage range	5 ~ 200VAC / DC
	Non repetitive peak voltage	400VAC / DC
	Rated load current	1.0A AC / DC(r.m.s 0.6A)
	Frequency	50 / 60Hz
	Peak surge current	6A
	leakage current	0.1mA
	Contact voltage drop	3.0V(MAX)
	Minimum operating current	0.1A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	8.3±1ms
	Circuit control	Non
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	20g

Terminal



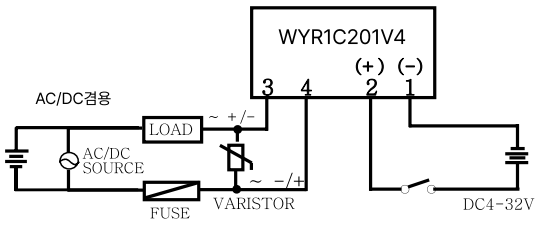
Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

Block Diagram

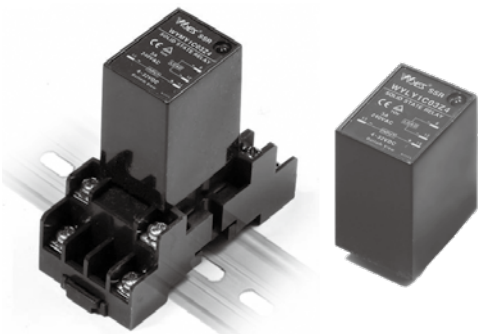


* VC : VOLTAGE CIRCUIT

Application Circuit



1Ø WYMY AC220V, 3A (DC/AC, AC/AC Type)

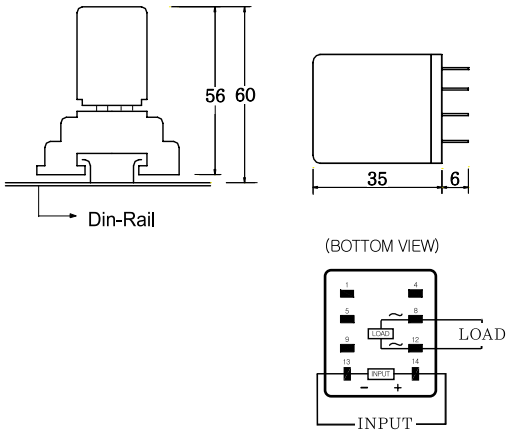


Socket & DIN Rail Type

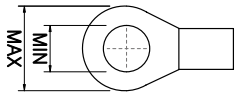
- 범용 MY-Type 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 2접점으로 구성되어있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착 되어 있고 Socket & DIN Rail을 사용하여 모듈화 하여 사용 하기 적합한 소형 SSR 입니다.
- AC 90~220V를 직접 제어 입력으로 사용하는 Z40 Type은 당사만의 특허 회로인 " 무발열 제어회로 " 가 사용되어 손실이 전혀 없는 고효율 System 구성이 가능합니다.
- TUV 규격 인증품 : EN60947, EN55011, EN61000

- This small SSR can be operated using sockets of ordinary MY-Type relays. It is composed of a 2 circuit equipped with an LED lamp which the state of power output can be indicated, and is suitable for modularization through the use DIN Rail.
- The Z40 and R40 types which directly use AC90~220V as control input use "No-heat emission control circuit", the circuit patented only by woonyoung co .,ltd. allowing configuration of zero loss and high-efficiency system.
- TUV cirtification : EN60947, EN55011, EN61000

Dimension



Terminal

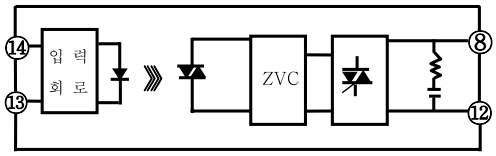


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

Specifications

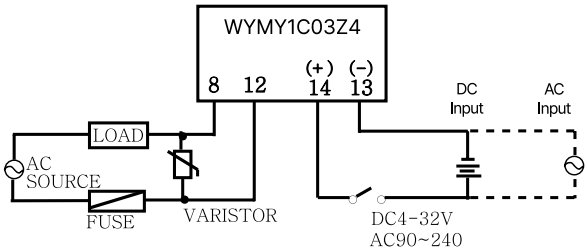
ITEM	MODEL	WYMY1C03Z4	WYMY1C03Z40
OUTPUT	Rated voltage	220VAC	
	Voltage range	90 ~ 240VAC	
	Non repetitive peak voltage	600V	
	Rated load current	3.0A (r.m.s 1.5A)	
	Frequency	50 / 60Hz	
	Peak surge current	50A	
	leakage current	1mA	
	Contact voltage drop	1.5V(MAX)	
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC
	Input current	10±3(mA)	AC240V / 8±3(mA)
	Minimum operating voltage	3.0VDC	45VAC
	Turn off voltage	1.4VDC	20VAC
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	8.3±1ms	
	Circuit control	Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	40g	

Block Diagram

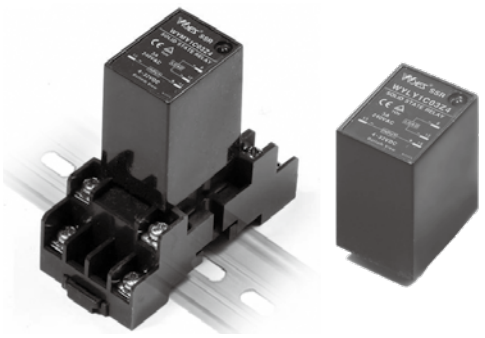


* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYMY DC/AC,DC 220V 무극성 1A (DC Input/AC,DC Output for non polarized Type)

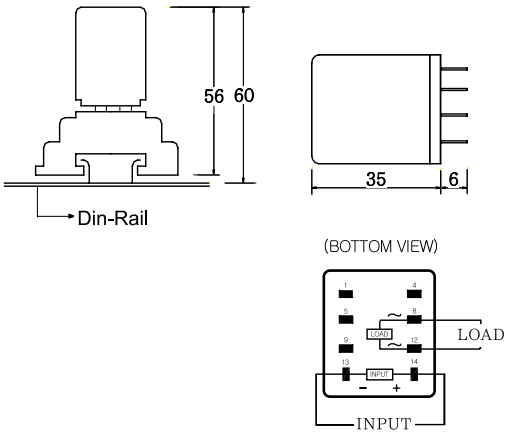


Socket & DIN Rail Type

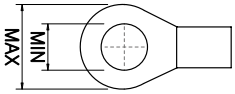
- 범용 MY-Type 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 Single Output(1회로)으로 구성되어있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착되어 있고 DIN Rail을 사용하여 모듈화 하여 사용 하기 적합한 소형 SSR 입니다.
- AC 90~220V를 직접 제어 입력으로 사용하는 Z40 Type은 당사만의 특허 회로인 "무발열 제어회로 " 가 사용되어 손실이 전혀 없는 고효율 System 구성이 가능합니다.
- TUV 규격 인증품 : EN60947, EN55011, EN61000

This small SSR can be operated using sockets of ordinary MY-Type relays. It is composed of a single output (1 circuit) equipped with an LED lamp which the state of power output can be indicated, and is suitable for modularization through the use DIN Rail.
The Z40 and R40 types which directly use AC90~220V as control input use "No-heat emission control circuit" the circuit patented only by woonyoung co., ltd., allowing configuration of zero loss and high-efficiency system.
- TUV cirtification : EN60947, EN55011, EN61000

Dimension



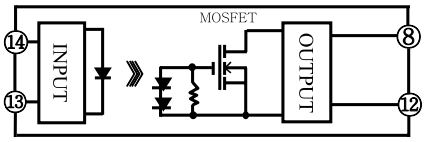
Terminal



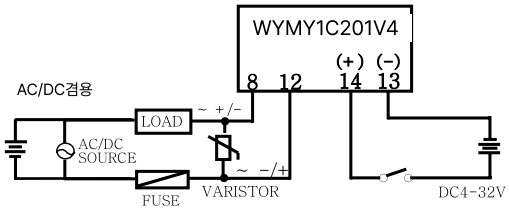
Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

ITEM \ MODEL		WYMY1C201V4
OUTPUT	Rated voltage	220VAC / DC
	Voltage range	5 ~ 240VAC / DC
	Non repetitive peak voltage	400VAC / DC
	Rated load current	1.0A AC / DC(r.m.s 0.6A)
	Frequency	50 / 60Hz
	Peak surge current	6A
	leakage current	0.1mA
	Contact voltage drop	3.0V(MAX)
	Minimum operating current	0.1A
INPUT	Maximum input voltage	32VDC
	Input voltage range	4 ~ 32VDC
	Input current	10±3(mA)
	Minimum operating voltage	3.0VDC
	Turn off voltage	1.4VDC
GENERAL	Dielectric withstand	1500VAC / 1Min
	Insulation resistance	DC 500V / 100MΩ
	Response time	8.3±1ms
	Circuit control	Non
	Operating temperature	−10 ~ +60°C
	Storage temperature	−20 ~ +80°C
	Weight	40g

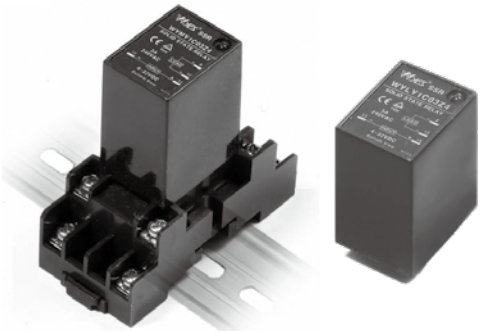
Block Diagram



Application Circuit



1Ø WYMY AC220V 2-CH 1A (DC/AC, AC/AC Type)

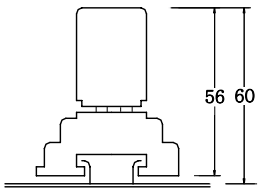


Socket & DIN Rail Type

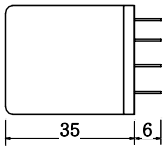
- 범용 MY-Type 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 2접점으로 구성되어있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착 되어 있고 DIN Rail을 사용하여 모듈화 하여 사용 하기 적합한 소형 SSR 입니다.
- AC 90~220V를 직접 제어 입력으로 사용하는 Z40 Type은 당사만의 특허 회로인 "무발열 제어회로 " 가 사용되어 손실이 전혀 없는 고효율 System 구성이 가능합니다.
- TUV 규격 인증품 : EN60947, EN55011, EN61000

This small SSR can be operated using sockets of ordinary MY-Type relays. It is composed of circuit equipped with an LED lamp which the state of power output can be indicated, and is suitable for modularization through the use DIN Rail.
The Z40 and R40 types which directly use AC90~220V as control input use “No-heat emission control circuit”, the circuit patented only by woonyoung co., ltd., allowing configuration of zero loss and high-efficiency system.

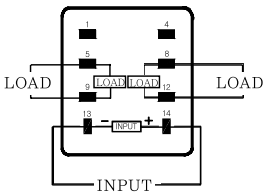
Dimension



Din-Rail



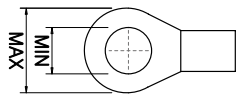
(BOTTOM VIEW)



Specifications

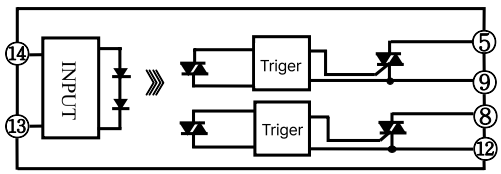
ITEM	MODEL	WYMY2C01Z4	WYMY2C01Z40
OUTPUT	Rated voltage	220VAC	
	Voltage range	90 ~ 240VAC	
	Non repetitive peak voltage	600V	
	Rated load current	1.0A (rms0.6A)	
	Frequency	50 / 60Hz	
	Peak surge current	31.5A	
	leakage current	Less than 2mA	
	Contact voltage drop	1.5V(MAX)	
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC
	Input current	10±3(mA)	10±5mA(220VAC)
	Minimum operating voltage	3.0VDC	80V
	Turn off voltage	1.4VDC	50V
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	Z4 : 8.3±1ms	Z40 : 30±1ms
	Circuit control	Z40, Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	40g	

Terminal

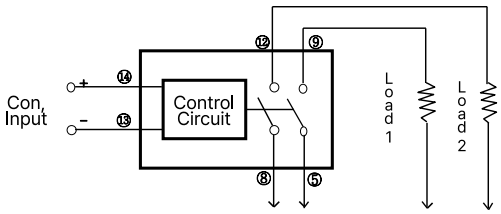


Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

Block Diagram

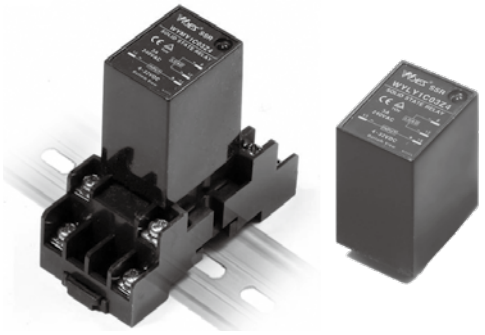


Application Circuit



Power Line AC90~240V

1Ø WYLY AC220V 3A (DC/AC, AC/AC Type)

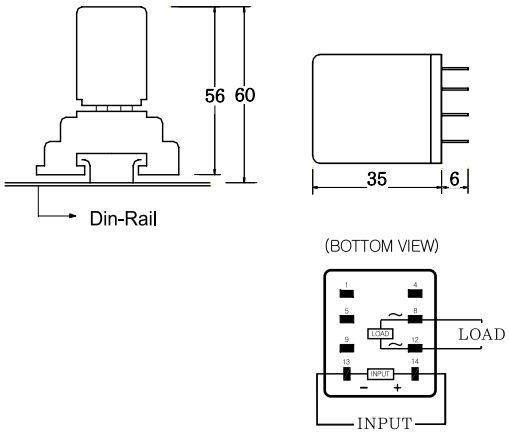


Socket & DIN Rail Type

- 범용 LY-Type 릴레이 제품의 소켓을 이용하여 사용할 수 있는 제품으로 Single Output(1회로)으로 구성되어있으며 통전 상태를 알수 있는 표시 램프(LED)가 부착되어 있고 DIN Rail을 사용하여 모듈화 하여 사용 하기 적합한 소형 SSR 입니다.
- AC 90~220V를 직접 제어 입력으로 사용하는 Z40 Type은 당사만의 특허 회로인 "무발열 제어회로 " 가 사용되어 손실이 전혀 없는 고효율 System 구성이 가능합니다.
- TUV 규격 인증품 : EN60947, EN55011, EN61000

This small SSR can be operated using sockets of ordinary LY-Type relays. It is composed of a single output (1 circuit) equipped with an LED lamp which the state of power output can be indicated, and is suitable for modularization through the use DIN Rail.
The Z40 and R40 types which directly use AC90~220V as control input use "No-heat emission control circuit", the circuit patented only by woonyoung co., ltd., allowing configuration of zero loss and high-efficiency system.

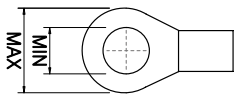
Dimension



Specifications

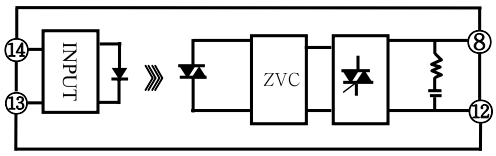
ITEM \ MODEL		WYLY1C03Z4	WYLY1C03Z40
OUTPUT	Rated voltage	220VAC	
	Voltage range	90 ~ 240VAC	
	Non repetitive peak voltage	600VAC	
	Rated load current	3.0A (rms 1.5A)	
	Frequency	50 / 60Hz	
	Peak surge current	50A	
	leakage current	Less than 1mA	
	Contact voltage drop	1.5V(MAX)	
	Minimum operating current	0.1A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC
	Input current	10±3(mA)	240VAC±8mA
	Minimum operating voltage	3.0VDC	45VAC
	Turn off voltage	1.4VDC	20VAC
GENERAL	Dielectric withstand	1500VAC / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	Z4 : 8.3±1ms	Z40 : 30±1ms
	Circuit control	Z40, Z4 : Zero cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	40g	

Terminal



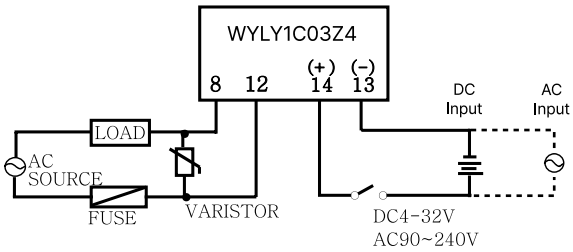
Input Ter : Max 6.2, Min 3.5
Output Ter : Max 6.2, Min 3.5

Block Diagram



ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYLG/H AC220/440V 10A~40A (DC/AC Type)

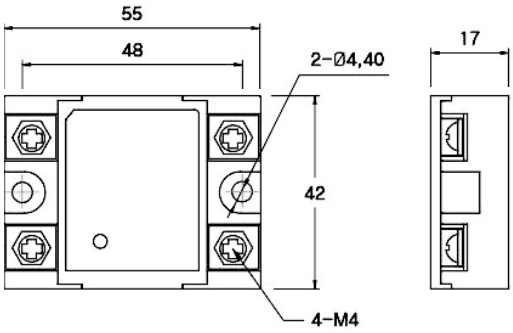
Metal Bonding Process

경제형(Economy Type)

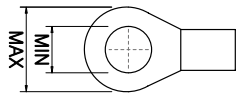
본 제품 시리즈는 AC90~480V, 10~40A의 용량을 가지고 있으며 입력측에 LED 표시 장치가 있습니다.

This products series rating of AC90~480V 10~40A, and are SSR feature an LED lamp according to input control circuit.

Dimension



Terminal

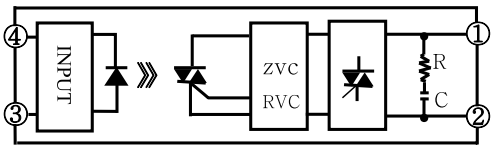


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Specifications

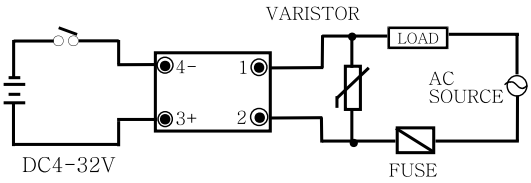
ITEM	MODEL	WYLG1C10 / 15 / 25 / 40Z4				WYLH1C10 / 15 / 25 / 40Z4			
OUTPUT	Rated voltage	220VAC				440VAC			
	Voltage range	90 ~ 240VAC				90 ~ 480VAC			
	Non repetitive peak voltage	600V				800 / 1200V			
	Rated load current	10A	15A	25A	40A	10A	15A	25A	40A
	Frequency	50 / 60Hz							
	Peak surge current	125A	260A	300A	315A	170A	250A	350A	370A
	leakage current	10mA							
	Contact voltage drop	1.0V				1.6V			
	Minimum operating current	1.0A							
INPUT	Maximum input voltage	32VDC							
	Input voltage range	4 ~ 32VDC							
	Input current	10±3(mA)							
	Minimum operating voltage	3.7VDC				3.2VDC			
	Turn off voltage	2.1VDC				1.6VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min							
	Insulation resistance	DC 500V / 100MΩ							
	Response time	Z4 : 8.3±1ms							
	Circuit control	Z4 : Zero cross type							
	Operating temperature	−10 ~ +60°C							
	Storage temperature	−20 ~ +80°C							
	Weight	0.1kg							

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYLG/H AC220/440V 10A~40A (AC/AC Type)

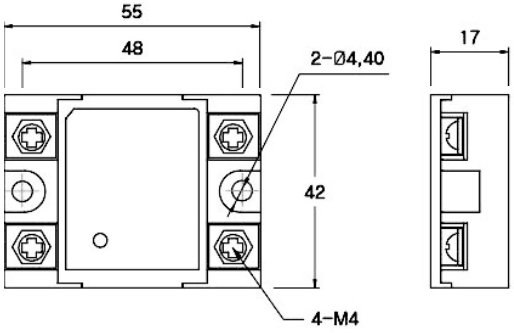
Metal Bonding Process

경제형(Economy Type)

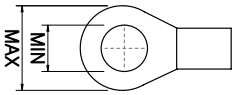
본 제품 시리즈는 AC90~480V, 10~40A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있습니다.

This products series rating of AC90~480V 10~40A, and are SSR feature an LED lamp according to input control circuit.

Dimension



Terminal

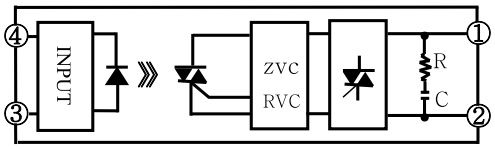


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Specifications

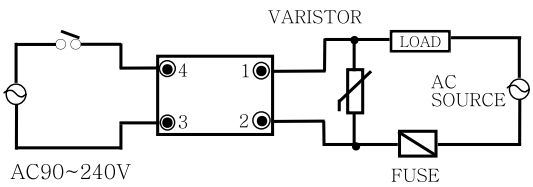
ITEM	MODEL	WYLG1C10 / 15 / 25 / 40Z40				WYLH1C10 / 15 / 25 / 40Z40			
OUTPUT	Rated voltage	220VAC				440VAC			
	Voltage range	90 ~ 240VAC				90 ~ 480VAC			
	Non repetitive peak voltage	600V				800 / 1200V			
	Rated load current	10A	15A	25A	40A	10A	15A	25A	40A
	Frequency	50 / 60Hz							
	Peak surge current	125A	260A	300A	315A	170A	250A	350A	370A
	leakage current	10mA							
	Contact voltage drop	1.0V				1.6V			
	Minimum operating current	1.0A							
INPUT	Maximum input voltage	240VAC							
	Input voltage range	90 ~ 240VAC							
	Input current	10±3(mA)							
	Minimum operating voltage	85VAC							
	Turn off voltage	20VAC							
GENERAL	Dielectric withstand	2000VAC / rms / 1Min							
	Insulation resistance	DC 500V / 100MΩ							
	Response time	Z40 : 30±1ms							
	Circuit control	Z40 : Zero cross type							
	Operating temperature	−10 ~ +60°C							
	Storage temperature	−20 ~ +80°C							
	Weight	0.1kg							

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYNG AC220V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

표준형(Standard Type)

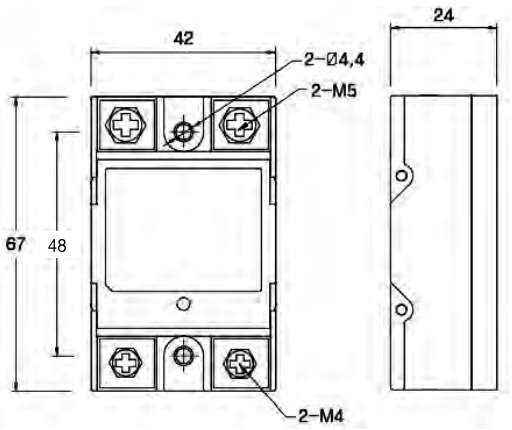
본 제품 시리즈는 UL( ) 인증을 획득한 제품으로 AC90~240V, 10~80A의 용량을 가지고 있으며 일반 저항성 부하(Z형), 일반 유도성 부하(R형)에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 램프(LED)가 부착되어 있는 SSR입니다.

• cUL 규격인증품 : UL508

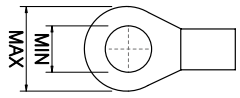
These product series have acquired UL ( ) certification. They carry capacity of AC90~240V 10~80A, and are used on resistive load (Z type) and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

• cUL Std. No : UL508

Dimension



Terminal



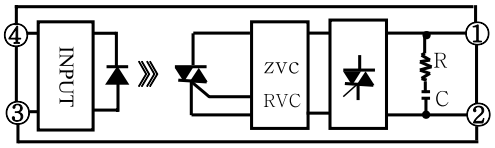
Input Ter : Max 9.5, Min 4
Output Ter : Max 12, Min 5

Specifications

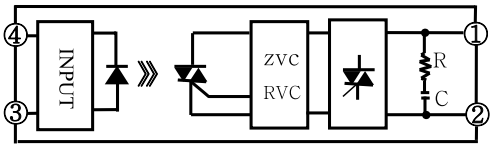
※ cUL Certificatied

ITEM	MODEL	※WYNG1C10/15/20/25/30/40Z4 WYNG1C50/60/80Z4					WYNG1C10/15/20/25/30Z40 WYNG1C40/50/60/80Z40			
		WYNG1C10/15/20/25/30/40R4 WYNG1C50/60/80R4					WYNG1C10/15/20/25/30Z40 WYNG1C40/50/60/80R40			
OUTPUT	Rated voltage	220VAC								
	Voltage range	90 ~ 240VAC								
	Non repetitive peak voltage	600V								
	Rated load current	10A	15A	20A	25A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz								
	Peak surge current	125A	260A	300A	300A	315A	315A	525A	525A	525A
	leakage current	10mA								
	Contact voltage drop	1.3V	1.5V	1.3V	1.3V	1.3V	1.3V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A								
INPUT	Maximum input voltage	32VDC					240VAC			
	Input voltage range	4 ~ 32VDC					90 ~ 240VAC			
	Input current	10mA					16mA(MAX)			
	Minimum operating voltage	3.0VDC					85VAC			
	Turn off voltage	1.4VDC					20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min								
	Insulation resistance	DC 500V / 100MΩ								
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms								
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type								
	Operating temperature	−10 ~ +60°C								
	Storage temperature	−20 ~ +80°C								
	Weight	0.1kg								

Block Diagram



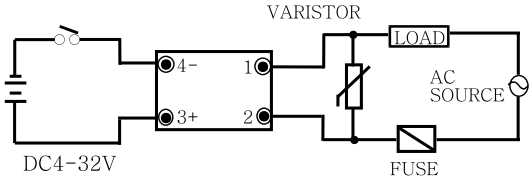
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT



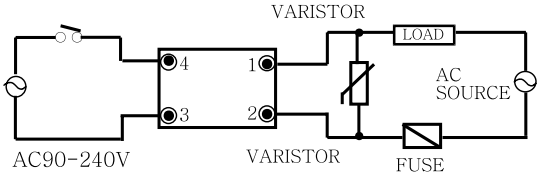
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit

DC/AC



AC/AC



1Ø WYNH AC440V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

표준형(Standard Type)

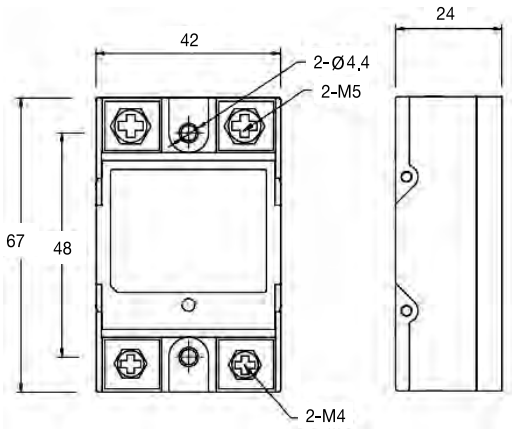
본 제품 시리즈는 UL( ) 인증을 획득한 제품으로 AC90~480V, 10~80A의 용량을 가지고 있으며 일반 저항성 부하(Z형), 일반 유도성 부하(R형)에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 램프(LED)가 부착되어 있는 SSR입니다.

• cUL 규격인증품 : UL508

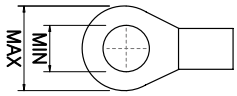
These product series have acquired UL ( ) certification. They carry capacity of AC90~480V 10~80A, and are used on resistive load (Z type) and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

• cUL Std. No : UL508

Dimension



Terminal



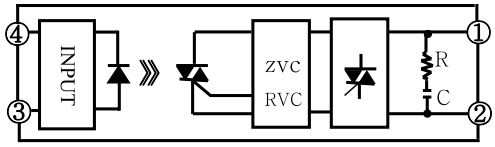
Input Ter : Max 9.5, Min 4
Output Ter : Max 12, Min 5

Specifications

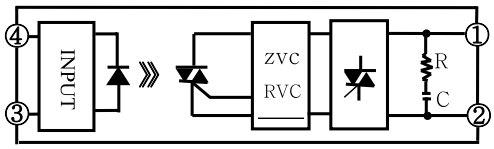
※ cUL Certificatied

ITEM	MODEL	※WYNH1C10/15/20/25/30/40Z4 WYNH1C50/60/80Z4					WYNH1C10/15/20/25/30/40Z40 WYNH1C50/60/80Z40			
		WYNH1C10/15/20/25/30/40R4 WYNH1C50/60/80R4					WYNH1C10/15/20/25/30/40R40 WYNH1C50/60/80R40			
OUTPUT	Rated voltage	440VAC								
	Voltage range	90 ~ 480VAC								
	Non repetitive peak voltage	800 / 1200V								
	Rated load current	10A	15A	20A	25A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz								
	Peak surge current	125A	260A	300A	300A	315A	315A	525A	525A	525A
	leakage current	10mA								
	Contact voltage drop	1.3V	1.5V	1.3V	1.3V	1.3V	1.3V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A								
INPUT	Maximum input voltage	32VDC					240VAC			
	Input voltage range	4 ~ 32VDC					90 ~ 240VAC			
	Input current	10mA					16mA(MAX)			
	Minimum operating voltage	3.0VDC					85VAC			
	Turn off voltage	1.4VDC					20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min								
	Insulation resistance	DC 500V / 100MΩ								
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms								
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type								
	Operating temperature	−10 ~ +60°C								
	Storage temperature	−20 ~ +80°C								
	Weight	0.1kg								

Block Diagram



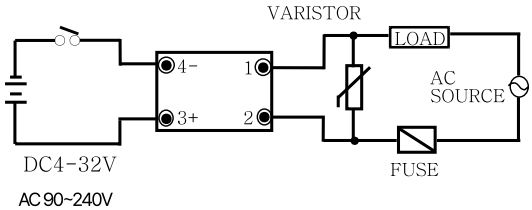
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT



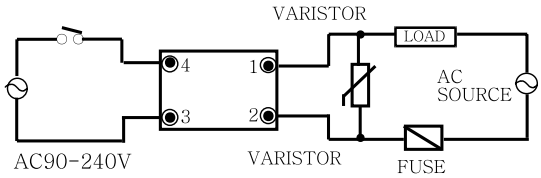
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit

DC/AC



AC/AC



1Ø WYG AC220V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

일반형(General Type)

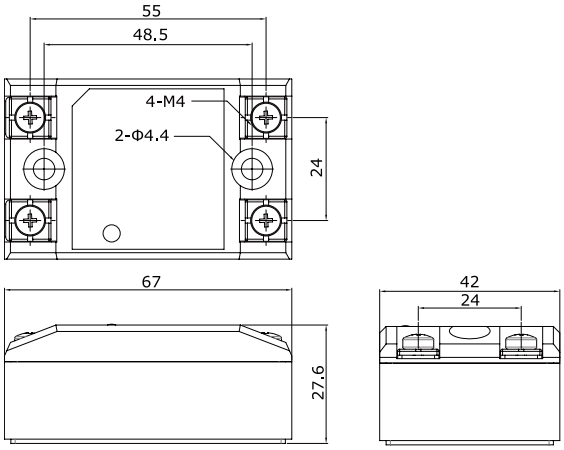
본 제품 시리즈는 UL(CE cULus) 인증을 획득한 제품으로 AC90~240V, 10~80A의 용량을 가지고 있으며 일반 저항성 부하(Z형), 일반 유도성 부하(R형)에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 램프(LED)가 부착되어 있는 SSR입니다.

• cUL 규격인증품 : UL508

These product series have acquired UL (CE cULus) certification. They carry capacity of AC90~240V 10~80A, and are used on resistive load (Z type) and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

• cUL Std. No : UL508

Dimension

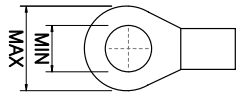


Specifications

※ cUL Certificatied

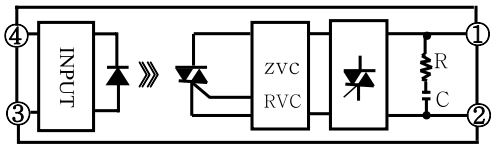
ITEM \ MODEL		※WYG1C10/20/30/40Z4 WYG1C50/60/80Z4				WYG1C10/20/30/40Z40 WYG1C50/60/80Z40		
		WYG1C10/20/30/40R4 WYG1C50/60/80R4				WYG1C10/20/30/40R40 WYG1C50/60/80R40		
OUTPUT	Rated voltage	220VAC						
	Voltage range	90 ~ 240VAC						
	Non repetitive peak voltage	600V						
	Rated load current	10A	20A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz						
	Peak surge current	125A	300A	315A	315A	525A	525A	525A
	leakage current	10mA						
	Contact voltage drop	1.3V	1.5V	1.3V	1.3V	1.3V	1.3V	1.8V
	Minimum operating current	1.0A						
INPUT	Maximum input voltage	32VDC				240VAC		
	Input voltage range	4 ~ 32VDC				90 ~ 240VAC		
	Input current	10mA				16mA(MAX)		
	Minimum operating voltage	3.0VDC				85VAC		
	Turn off voltage	1.4VDC				20VAC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min						
	Insulation resistance	DC 500V / 100MΩ						
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms						
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type						
	Operating temperature	−10 ~ +60°C						
	Storage temperature	−20 ~ +80°C						
	Weight	0.1kg						

Terminal

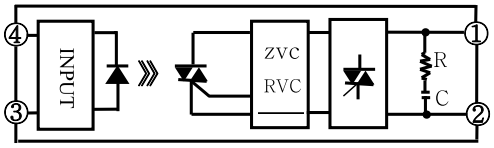


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Block Diagram



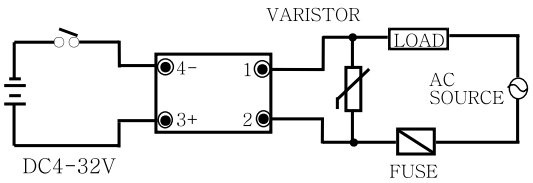
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT



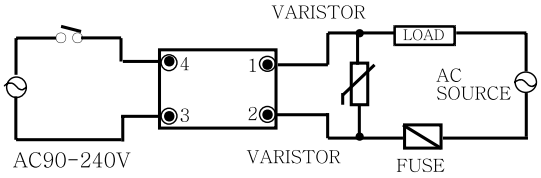
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit

DC/AC



AC/AC



1Ø WYH AC440V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

일반형(General Type)

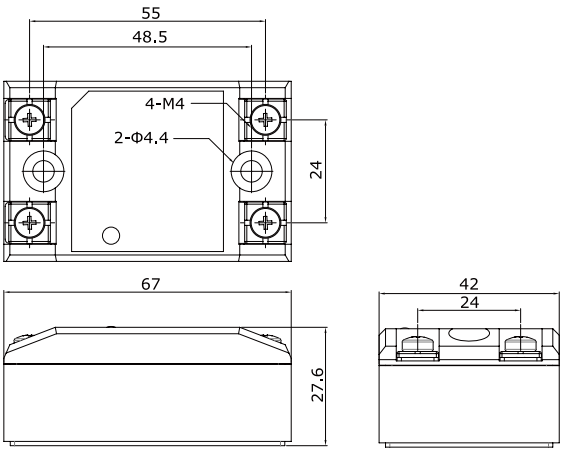
본 제품 시리즈는 UL(CE cULus) 인증을 획득한 제품으로 AC90~480V, 10~80A의 용량을 가지고 있으며 일반 저항성 부하(Z형), 일반 유도성 부하(R형)에 사용되며 입력 콘트롤에 따라 ON/OFF 상태를 식별할 수 있는 램프(LED)가 부착되어 있는 SSR입니다.

• cUL 규격인증품 : UL508

These product series have acquired UL (CE cULus) certification. They carry capacity of AC90~480V 10~80A, and are used on resistive load (Z type) and on general inductive load. These SSR feature an LED that can identify the state of power ON/OFF according to input control.

• cUL Std. No : UL508

Dimension

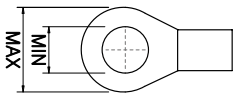


Specifications

※ cUL Certificatied

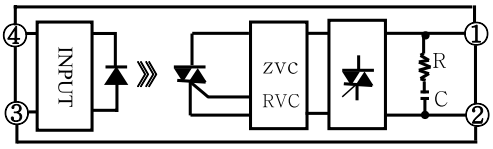
ITEM	MODEL	※WYH1C10/20/30/40Z4 WYH1C50/60/80Z4						WYH1C10/20/30/40Z40 WYH1C50/60/80Z40
		WYH1C10/20/30/40R4 WYH1C50/60/80R4						WYH1C10/20/30/40R40 WYH1C50/60/80R40
OUTPUT	Rated voltage	440VAC						
	Voltage range	90 ~ 480VAC						
	Non repetitive peak voltage	800 / 1200V						
	Rated load current	10A	20A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz						
	Peak surge current	125A	300A	315A	315A	525A	525A	525A
	leakage current	10mA						
	Contact voltage drop	1.3V	1.5V	1.3V	1.3V	1.3V	1.3V	1.8V
	Minimum operating current	1.0A						
INPUT	Maximum input voltage	32VDC				240VAC		
	Input voltage range	4 ~ 32VDC				90 ~ 240VAC		
	Input current	10mA				16mA(MAX)		
	Minimum operating voltage	3.0VDC				85VAC		
	Turn off voltage	1.4VDC				20VAC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min						
	Insulation resistance	DC 500V / 100MΩ						
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms						
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type						
	Operating temperature	−10 ~ +60°C						
	Storage temperature	−20 ~ +80°C						
	Weight	0.1kg						

Terminal



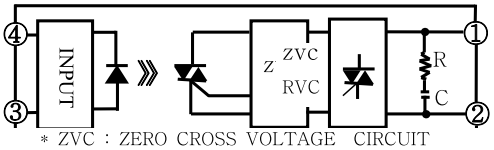
Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Block Diagram



DC/AC

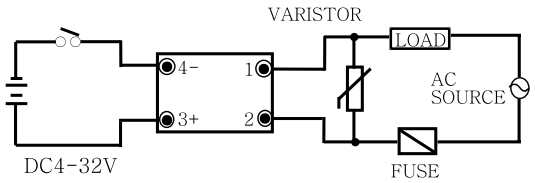
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

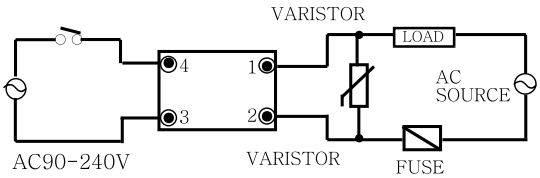


AC/AC

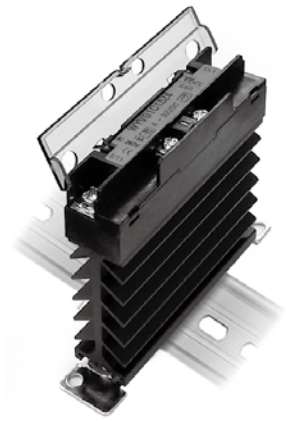
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit





1Ø WYVG AC220V 10, 15A (DC/AC Type)

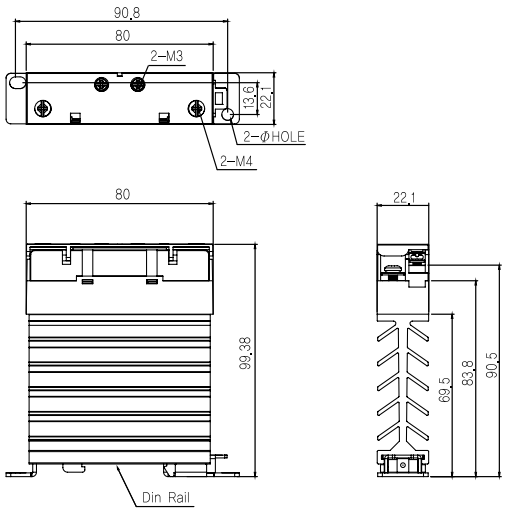


DIN 방열판일체형(SSR/Heat Sink Type)

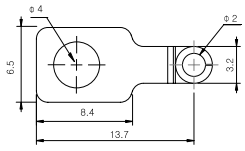
방열판을 붙여 일체화 시킨 제품으로 AC90~240V, 10, 15A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

This product with embedded heat sink is a product carrying voltage of AC90~240V, and the current capacity of 10, 15A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

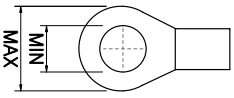
Dimension



Terminal



Input ter

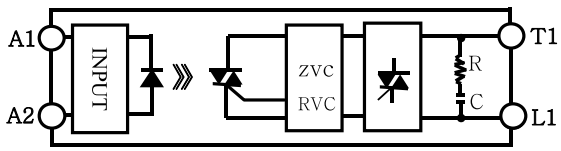


Output Ter : Max 9.5, Min 4

Specifications

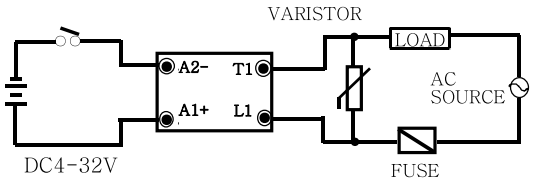
ITEM \ MODEL		WYVG1C10 / 15Z4 WYVG1C10 / 15R4	WYVG1C10 / 15Z40 WYVG1C10 / 15R40
OUTPUT	Rated voltage	220VAC	
	Voltage range	90 ~ 240VAC	
	Non repetitive peak voltage	600VAC	
	Rated load current	10A	15A
	Frequency	50 / 60Hz	
	Peak surge current	170A	250A
	leakage current	10mA	
	Contact voltage drop	1.95V	1.8V
	Minimum operating current	1.0A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 220VAC
	Input current	10±3(mA)	16±3mA(240VAC)
	Minimum operating voltage	3.0VDC	85V
	Turn off voltage	1.4VDC	20V
GENERAL	Dielectric withstand	2000VAC / rms / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms	
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	0.2kg	

Block Diagram

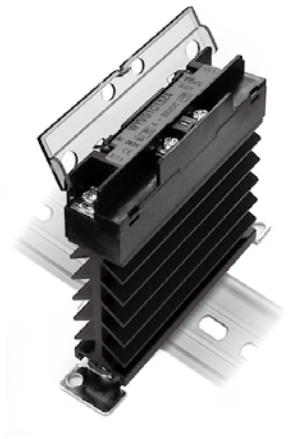


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYVH AC440V 10, 15A (DC/AC Type)

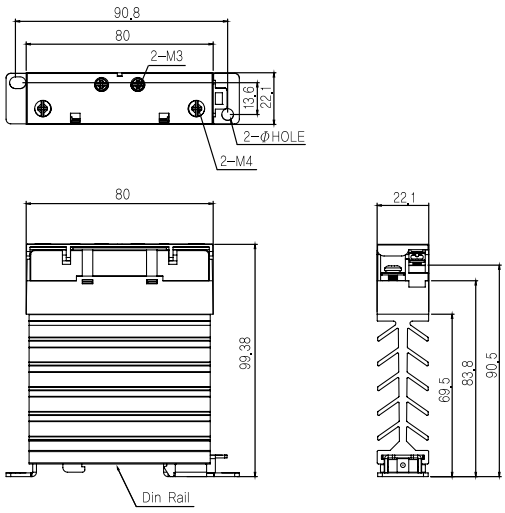


DIN 방열판일체형(SSR/Heat Sink Type)

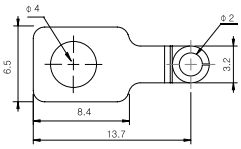
방열판을 붙여 일체화 시킨 제품으로 AC90~440V, 10, 15A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

This product with embedded heat sink is a product carrying voltage of AC90~440V, and the current capacity of 10, 15A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

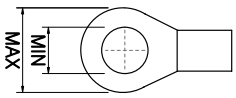
Dimension



Terminal



Input ter

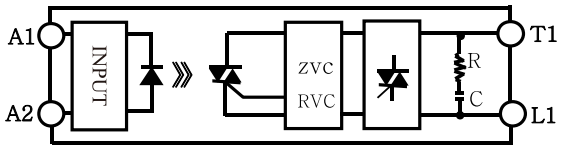


Output Ter : Max 9.5, Min 4

Specifications

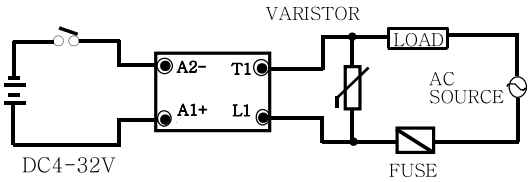
ITEM \ MODEL		WYVH1C10 / 15Z4 WYVH1C10 / 15R4	WYVH1C10 / 15Z40 WYVH1C10 / 15R40
OUTPUT	Rated voltage	440VAC	
	Voltage range	90 ~ 480VAC	
	Non repetitive peak voltage	800VAC	
	Rated load current	10A	15A
	Frequency	50/60Hz	
	Peak surge current	170A	250A
	leakage current	10mA	
	Contact voltage drop	1.95V	1.8V
	Minimum operating current	1.0A	
INPUT	Maximum input voltage	32VDC	240VAC
	Input voltage range	4 ~ 32VDC	90 ~ 220VAC
	Input current	10±3(mA)	16±3mA(240VAC)
	Minimum operating voltage	3.0VDC	80V
	Turn off voltage	1.4VDC	20V
GENERAL	Dielectric withstand	2000VAC / rms / 1Min	
	Insulation resistance	DC 500V / 100MΩ	
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms	
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type	
	Operating temperature	−10 ~ +60°C	
	Storage temperature	−20 ~ +80°C	
	Weight	0.2kg	

Block Diagram

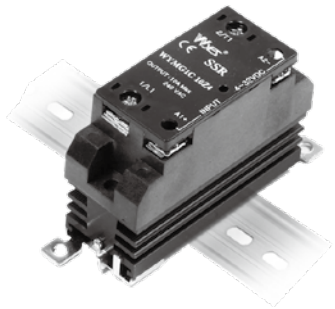


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYMG AC220V 10A~40A (DC/AC Type)

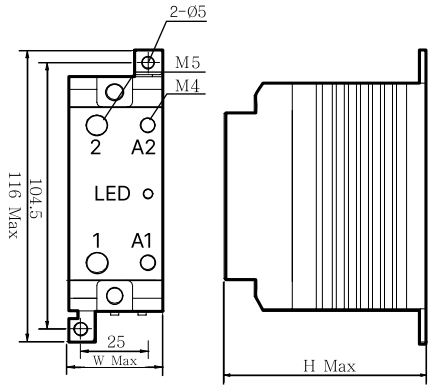


DIN 방열판일체형(SSR/Heat Sink Type)

방열판을 붙여 일체화 시킨 제품으로 AC90~240V, 10~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

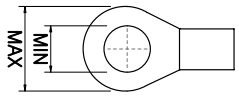
This product with self heat sink is a product carrying voltage of AC90~240V, and the current capacity of 10-40A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

Dimension



Current	10A	15A	25A	40A
H(높이)×W(폭)	80×36mm	93×36mm	105×36mm	105×45mm

Terminal

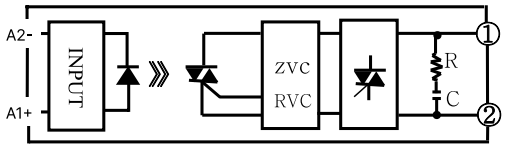


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

Specifications

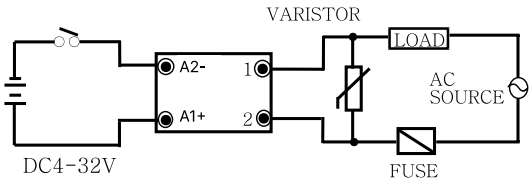
ITEM	MODEL	WYMG1C10 / 15 / 25 / 40Z4 WYMG1C10 / 15 / 25 / 40R4			
OUTPUT	Rated voltage	220VAC			
	Voltage range	90 ~ 240VAC			
	Non repetitive peak voltage	600VAC			
	Rated load current	10A	15A	25A	40A
	Frequency	50/60Hz			
	Peak surge current	170A	250A	350A	370A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	32VDC			
	Input voltage range	4 ~ 32VDC			
	Input current	10±3(mA)			
	Minimum operating voltage	3.0VDC			
	Turn off voltage	1.4VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R4 : 1±1ms Z4 : 8.3±1ms			
	Circuit control	Z4 : Zero cross type R4 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	0.4kg			

Block Diagram

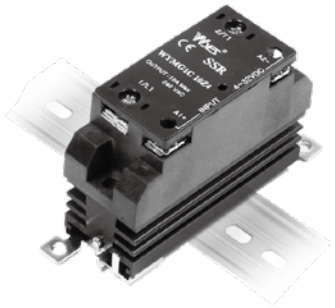


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYMG AC220V 10A~40A (AC/AC Type)

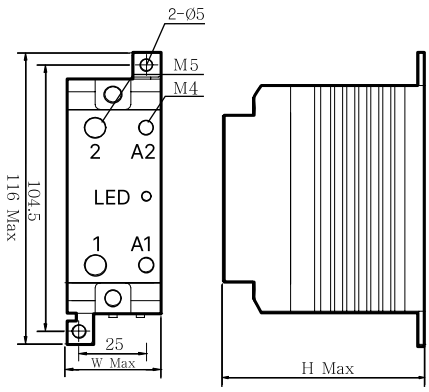


DIN 방열판일체형(SSR/Heat Sink Type)

방열판을 붙여 일체화 시킨 제품으로 AC90~240V, 10~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

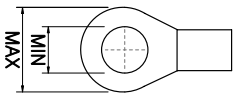
This product with self heat sink is a product carrying voltage of AC90~240V, and the current capacity of 10-40A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

Dimension



Current	10A	15A	25A	40A
H(높이)×W(폭)	80×36mm	96×35mm	105×36mm	105×45mm

Terminal

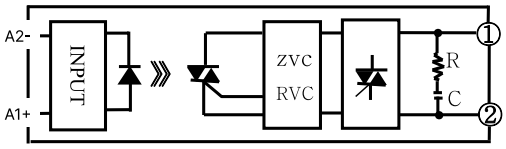


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

Specifications

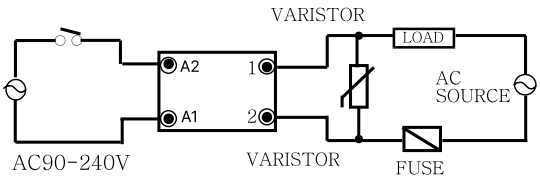
ITEM \ MODEL		WYMG1C10 / 15 / 25 / 40Z40 WYMG1C10 / 15 / 25 / 40R40			
OUTPUT	Rated voltage	220VAC			
	Voltage range	90 ~ 240VAC			
	Non repetitive peak voltage	600V			
	Rated load current	10A	15A	25A	40A
	Frequency	50 / 60Hz			
	Peak surge current	170A	250A	350A	370A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	240VAC			
	Input voltage range	90~240VAC			
	Input current	16±3mA(240VAC)			
	Minimum operating voltage	85VAC			
	Turn off voltage	20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R40, Z40 : 30±1ms			
	Circuit control	Z40 : Zero cross type R40 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	0.5kg			

Block Diagram

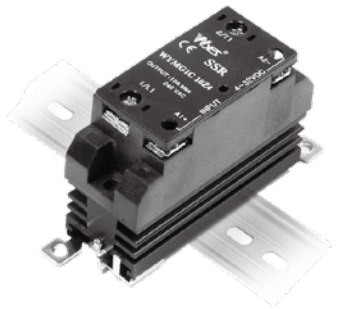


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYMH AC440V 10A~40A (DC/AC Type)

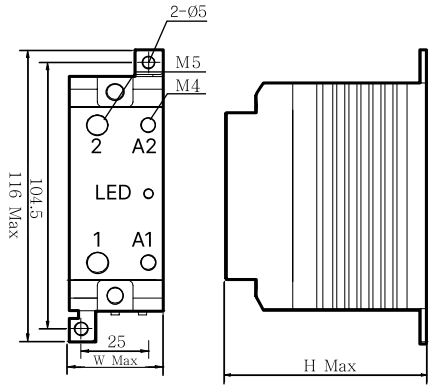


DIN 방열판일체형(SSR/Heat Sink Type)

방열판을 붙여 일체화 시킨 제품으로 90~480V, 10~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화 시킨 일체형 SSR 입니다.

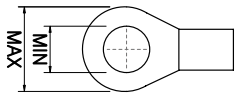
This product with self heat sink is a product carrying voltage of 90~480V and the current capacity of 10-40A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

Dimension



Current	10A	15A	25A	40A
H(높이)×W(폭)	80×36mm	93×36mm	105×36mm	105×45mm

Terminal

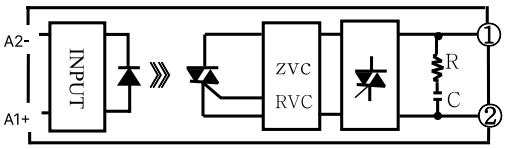


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

Specifications

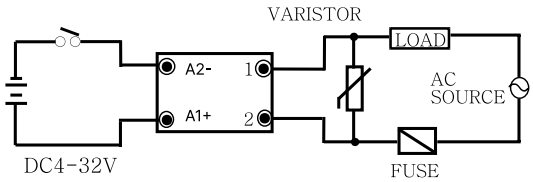
ITEM \ MODEL		WYMH1C10 / 15 / 25 / 40Z4 WYMH1C10 / 15 / 25 / 40R4			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90 ~ 480VAC			
	Non repetitive peak voltage	800V / 1200V			
	Rated load current	10A	15A	25A	40A
	Frequency	50 / 60Hz			
	Peak surge current	170A	250A	350A	370A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	32VDC			
	Input voltage range	4 ~ 32VDC			
	Input current	10±3(mA)			
	Minimum operating voltage	3.0VDC			
	Turn off voltage	1.4VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R4 : 1±1ms Z4 : 8.3±1ms			
	Circuit control	Z4 : Zero cross type R4 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	0.5kg			

Block Diagram

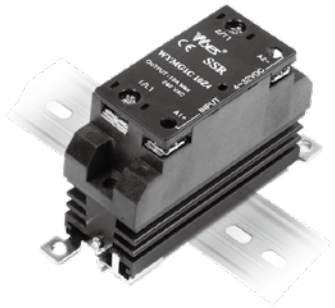


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYMH AC440V 10A~40A (AC/AC Type)

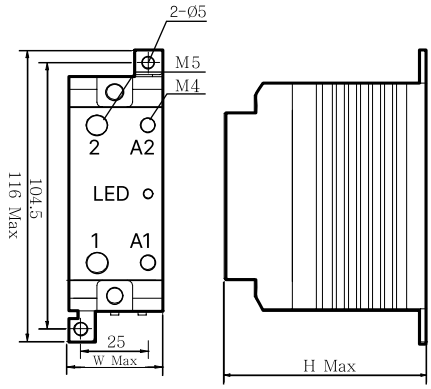


DIN 방열판일체형(SSR/Heat Sink Type)

방열판을 붙여 일체화 시킨 제품으로 90~480V, 10~40A의 전류 용량을 가진 제품으로 별도의 방열판을 부착하지 않고 공간의 활용도가 타 제품보다 탁월하여 취부공간의 면적을 최소화 할 수 있으며 DIN RAIL에도 장착 사용할 수 있어 편리하게 사용할 수 있도록 일체화 시킨 일체형 SSR 입니다.

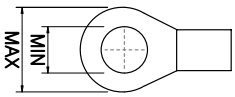
This product with self heat sink is a product carrying voltage of 90~480V and the current capacity of 10-40A. This integrated SSR features space utilization level which is superior to that of other products without using a separate heat sink, minimizing the area of the installing space. It can be used in a convenient way since it can also be mounted on DIN rail.

Dimension



Current	10A	15A	25A	40A
H(높이)×W(폭)	80×36mm	96×35mm	105×36mm	105×45mm

Terminal

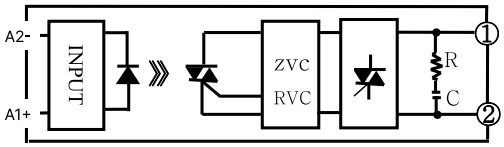


Input Ter : Max 10, Min 4
Output Ter : Max 10, Min 4

Specifications

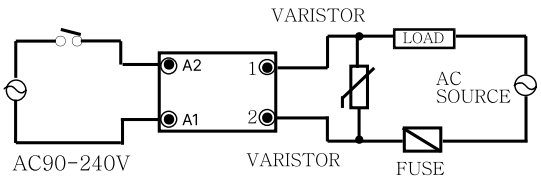
ITEM \ MODEL		WYMH1C10 / 15 / 25 / 40Z40 WYMH1C10 / 15 / 25 / 40R40			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90 ~ 480VAC			
	Non repetitive peak voltage	800V / 1200V			
	Rated load current	10A	15A	25A	40A
	Frequency	50 / 60Hz			
	Peak surge current	170A	250A	350A	370A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	240VAC			
	Input voltage range	90 ~ 220VAC			
	Input current	16±3mA(240VAC)			
	Minimum operating voltage	85VAC			
	Turn off voltage	20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R40, Z40 : 30±1ms			
	Circuit control	Z40 : Zero cross type R40 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	0.5kg			

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



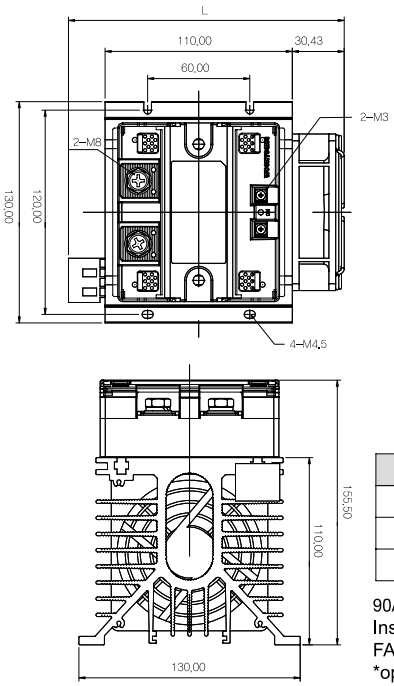
1Ø WYNMG AC220V 50A~160A (DC/AC Type)

Module Type

모듈화된 고신뢰성 소자를 사용하여 제작된 방식으로 내구성 및 신뢰성을 높였고 부하전압 AC 90~240V, 부하전류 50~160A까지 대전류 용량을 가진 제품 입니다.

Manufactured using modularized, highly reliable power devices, this product has improved durability and reliability carrying high current capacity of AC 90~240V and up to load current of 50~160A.

Dimension



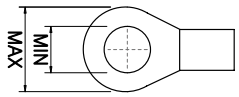
MODEL	L
50–70A	110mm
90–110A	162mm
130–160A	182mm

90A 이상은 FAN 부착
Install Fan of over 90A
FAN : AC220V,
*option : DC12 or 24V

Specifications

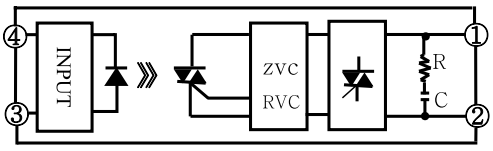
ITEM \ MODEL		WYNMG1C50 / 70 / 90 / 110 / 130 / 160Z4 WYNMG1C50 / 70 / 90 / 110 / 130 / 160R4					
OUTPUT	Rated voltage	220VAC					
	Voltage range	90 ~ 240VAC					
	Non repetitive peak voltage	600V					
	Rated load current	50A	70A	90A	110A	130A	160A
	Frequency	50 / 60Hz					
	Peak surge current	1500A	2000A	2000A	2250A	5400A	5400A
	leakage current	10mA					
	Contact voltage drop	1.6V	1.6V	1.6V	1.6V	1.6V	1.6V
	Minimum operating current	1.0A					
INPUT	Maximum input voltage	32VDC					
	Input voltage range	4 ~ 32VDC					
	Input current	10±3(mA)					
	Minimum operating voltage	3.0VDC					
	Turn off voltage	1.4VDC					
GENERAL	Dielectric withstand	2000VAC / rms / 1Min					
	Insulation resistance	DC 500V / 100MΩ					
	Response time	R4 : 1±1ms Z4 : 8.3±1ms					
	Circuit control	Z4 : Zero cross type R4 : Random cross type					
	Operating temperature	−10 ~ +60°C					
	Storage temperature	−20 ~ +80°C					
	Weight	2.3kg					

Terminal



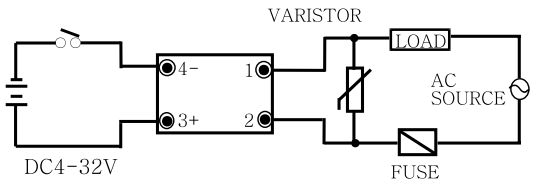
Input Ter : Max 9.5, Min 4
Output Ter : Max 15, Min 6.5

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



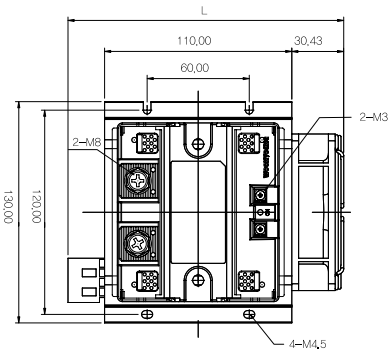
1Ø WYNMG AC220V 50A~160A (AC/AC Type)

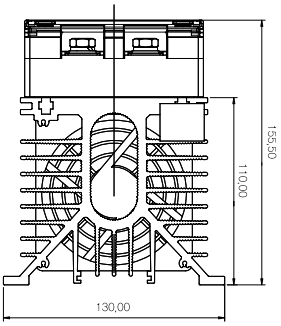
Module Type

모듈화된 고신뢰성 소자를 사용하여 제작된 방식으로 내구성 및 신뢰성을 높였고 부하전압 AC90~240V, 부하전류 50~160A까지 대전류 용량을 가진 제품 입니다.

Manufactured using modularized, highly reliable power devices, this product has improved durability and reliability carrying high current capacity of AC90~240V and up to load current of 50~160A.

Dimension





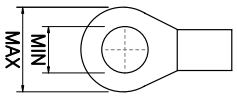
MODEL	L
50–70A	110mm
90–110A	162mm
130–160A	182mm

90A 이상은 FAN 부착
Install Fan of over 90A
FAN : AC220V,
*option : DC12 or 24V

Specifications

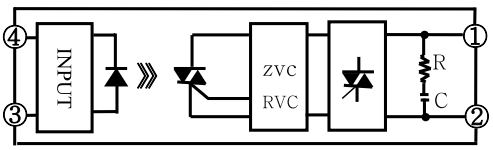
ITEM	MODEL	WYNMG1C50 / 70 / 90 / 110 / 130 / 160Z40 WYNMG1C50 / 70 / 90 / 110 / 130 / 160R40					
OUTPUT	Rated voltage	220VAC					
	Voltage range	90 ~ 240VAC					
	Non repetitive peak voltage	600V					
	Rated load current	50A	70A	90A	110A	130A	160A
	Frequency	50 / 60Hz					
	Peak surge current	1500A	2000A	2000A	2250A	5400A	5400A
	leakage current	10mA					
	Contact voltage drop	1.6V	1.6V	1.6V	1.6V	1.6V	1.6V
	Minimum operating current	1.0A					
INPUT	Maximum input voltage	240VAC					
	Input voltage range	90 ~ 240VAC					
	Input current	16±3mA(240VAC)					
	Minimum operating voltage	80VAC					
	Turn off voltage	20VAC					
GENERAL	Dielectric withstand	2000VAC / rms / 1Min					
	Insulation resistance	DC 500V / 100MΩ					
	Response time	R40, Z40 : 30±1ms					
	Circuit control	Z40 : Zero cross type R40 : Random cross type					
	Operating temperature	−10 ~ +60°C					
	Storage temperature	−20 ~ +80°C					
	Weight	2.3kg					

Terminal



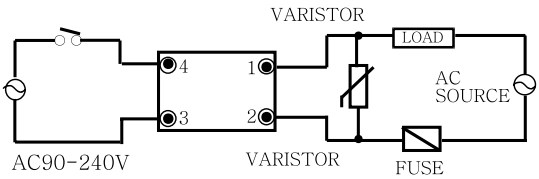
Input Ter : Max 9.5, Min 4
Output Ter : Max 15, Min 6.5

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



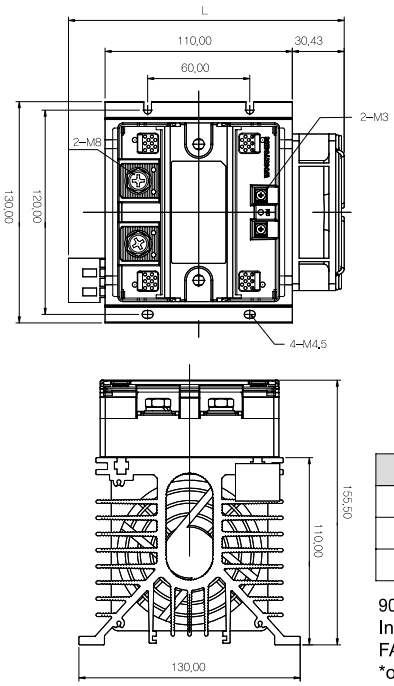
1Ø WYNMH AC440V 50A~160A (DC/AC Type)

Module Type

모듈화된 고신뢰성 소자를 사용하여 제작된 방식으로 내구성 및 신뢰성을 높였고 부하전압 AC90~480V, 부하전류 50~160A까지 대전류 용량을 가진 제품 입니다.

Manufactured using modularized, highly reliable power devices, this product has improved durability and reliability carrying high current capacity of AC90~480V and up to load current of 50~160A.

Dimension



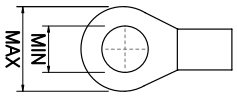
MODEL	L
50–70A	110mm
90–110A	162mm
130–160A	182mm

90A 이상은 FAN 부착
Install Fan of over 90A
FAN : AC220V,
*option : DC12 or 24V

Specifications

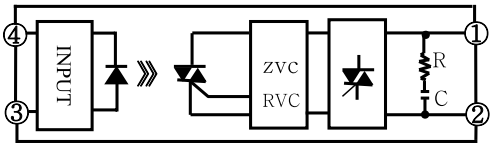
ITEM \ MODEL		WYNMH1C50 / 70 / 90 / 110 / 130 / 160Z4 WYNMH1C50 / 70 / 90 / 110 / 130 / 160R4					
OUTPUT	Rated voltage	440VAC					
	Voltage range	90 ~ 480VAC					
	Non repetitive peak voltage	1600V					
	Rated load current	50A	70A	90A	110A	130A	160A
	Frequency	50 / 60Hz					
	Peak surge current	1500A	2000A	2000A	2250	5400A	5400A
	leakage current	10mA					
	Contact voltage drop	1.6V	1.6V	1.6V	1.6V	1.6V	1.6V
	Minimum operating current	1.0A					
INPUT	Maximum input voltage	32VDC					
	Input voltage range	4 ~ 32VDC					
	Input current	10±3(mA)					
	Minimum operating voltage	3.0VDC					
	Turn off voltage	1.4VDC					
GENERAL	Dielectric withstand	2000VAC / rms / 1Min					
	Insulation resistance	DC 500V / 100MΩ					
	Response time	R4 : 1±1ms Z4 : 8.3±1ms					
	Circuit control	Z4 : Zero cross type R4 : Random cross type					
	Operating temperature	−10 ~ +60°C					
	Storage temperature	−20 ~ +80°C					
	Weight	2.3kg					

Terminal



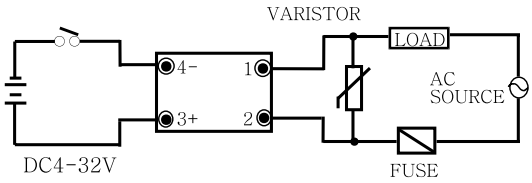
Input Ter : Max 9.0, Min 3.5
Output Ter : Max 25, Min 9.0

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



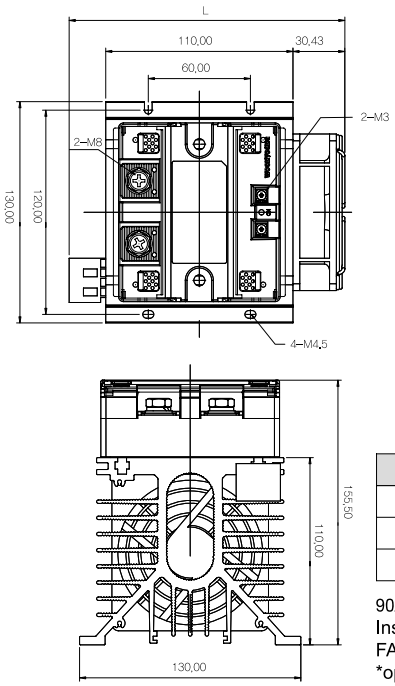
1Ø WYNMH AC440V 50A~160A (AC/AC Type)

Module Type

모듈화된 고신뢰성 소자를 사용하여 제작된 방식으로 내구성 및 신뢰성을 높였고 부하전압 AC90~480V, 부하전류 50~160A까지 대전류 용량을 가진 제품 입니다.

Manufactured using modularized, highly reliable power devices, this product has improved durability and reliability carrying high current capacity of AC90~480V and up to load current of 50~160A.

Dimension



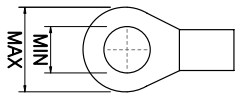
MODEL	L
50-70A	110mm
90-110A	162mm
130-160A	182mm

90A 이상은 FAN 부착
Install Fan of over 90A
FAN : AC220V,
*option : DC12 or 24V

Specifications

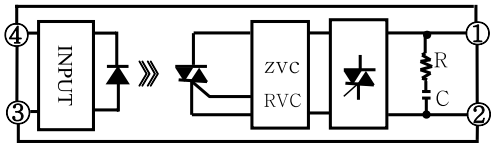
ITEM \ MODEL		WYNMH1C50 / 70 / 90 / 110 / 130 / 160Z40 WYNMH1C50 / 70 / 90 / 110 / 130 / 160R40					
OUTPUT	Rated voltage	440VAC					
	Voltage range	90 ~ 480VAC					
	Non repetitive peak voltage	1600V					
	Rated load current	50A	70A	90A	110A	130A	160A
	Frequency	50 / 60Hz					
	Peak surge current	1500A	2000A	2000A	2250A	5400A	5400A
	leakage current	10mA					
	Contact voltage drop	1.6V	1.6V	1.6V	1.6V	1.6V	1.6V
	Minimum operating current	1.0A					
INPUT	Maximum input voltage	240VAC					
	Input voltage range	90 ~ 240VAC					
	Input current	16±3mA(240VAC)					
	Minimum operating voltage	85VAC					
	Turn off voltage	20VAC					
GENERAL	Dielectric withstand	2000VAC / rms / 1Min					
	Insulation resistance	DC 500V / 100MΩ					
	Response time	R40, Z40 : 30±1ms					
	Circuit control	Z40 : Zero cross type R40 : Random cross type					
	Operating temperature	−10 ~ +60°C					
	Storage temperature	−20 ~ +80°C					
	Weight	2.3kg					

Terminal



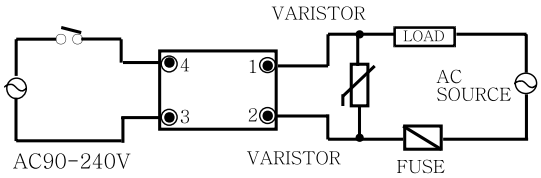
Input Ter : Max 9.5, Min 4
Output Ter : Max 15, Min 6.5

Block Diagram

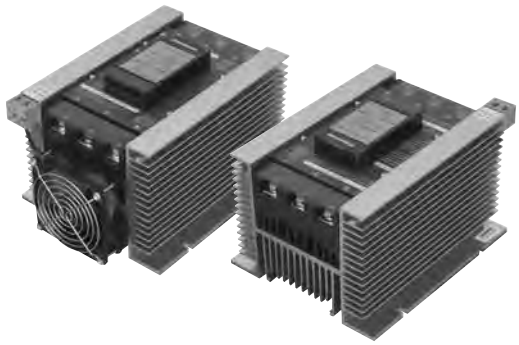


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYFMH AC440V 60A~150A (DC/AC Type)

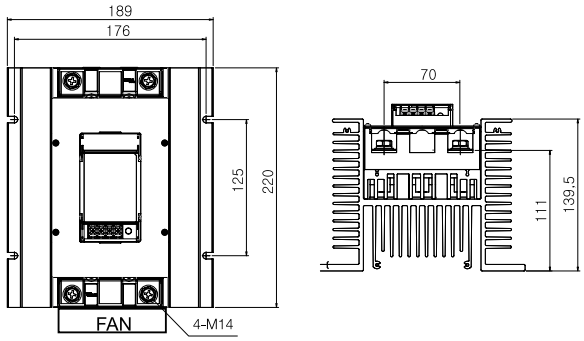


방열판 일체형 (SSR/FAN/Heat Sink Type)

방열판이 붙은 일체형으로 AC90~480V, 60~150A의 대용량 제품으로 별도의 방열판을 부착하지 않고 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

This integral type SSR with an self heat sink is a product of large capacity of AC90~480V, 60~150A. This SSR has designed self heat sink without attaching any another heat sink so that the product can easily be used.

Dimension

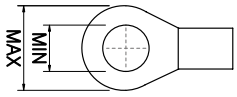


100A 이상은 FAN 부착
Install Fan of over 100A
FAN : AC220V, *option : DC12 or 24V

Specifications

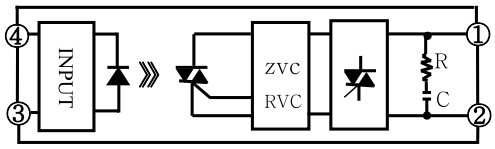
ITEM	MODEL	WYFMH1C60 / 80 / 100 / 150Z4 WYFMH1C60 / 80 / 100 / 150R4			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90~480VAC			
	Non repetitive peak voltage	1600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50/60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.4V	1.4V	1.4V	1.45V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	32VDC			
	Input voltage range	4~32VDC			
	Input current	10±3(mA)			
	Minimum operating voltage	3.0VDC			
	Turn off voltage	1.4VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R4 : 1±1ms Z4 : 8.3±1ms			
	Circuit control	Z4 : Zero cross type R4 : Random cross type			
	Operating temperature	-10 ~ +60°C			
	Storage temperature	-20 ~ +80°C			
	Weight	5.2kg			

Terminal



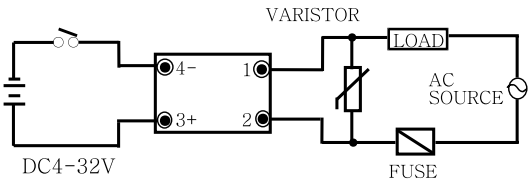
Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 14

Block Diagram

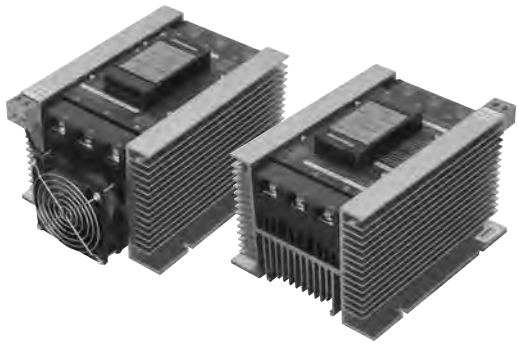


* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYFMH AC440V 60A~150A (AC/AC Type)

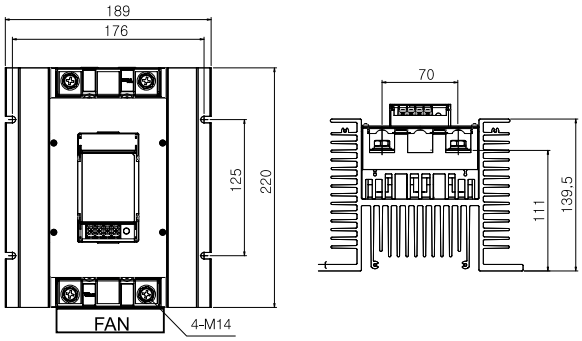


방열판 일체형 (SSR/FAN/Heat Sink Type)

방열판이 붙은 일체형으로 AC90~480V, 60~150A의 대용량 제품으로 별도의 방열판을 부착하지 않고 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

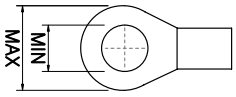
This integral type SSR with an self heat sink is a product of large capacity of AC90~480V, 60~150A. This SSR has designed self heat sink without attaching any another heat sink so that the product can easily be used.

Dimension



100A 이상은 FAN 부착
Install Fan of over 100A
FAN : AC220V, *option : DC12 or 24V

Terminal

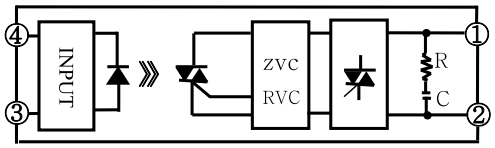


Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 14

Specifications

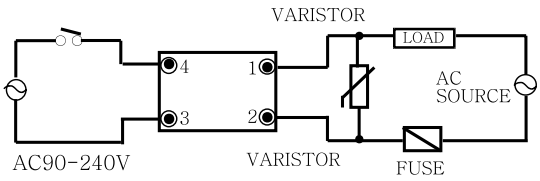
ITEM \ MODEL		WYFMH1C60 / 80 / 100 / 150Z40 WYFMH1C60 / 80 / 100 / 150R40			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90~480VAC			
	Non repetitive peak voltage	1600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50/60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.4V	1.4V	1.4V	1.45V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	240VDC			
	Input voltage range	90~240VAC			
	Input current	16mA±2mA(240VAC)			
	Minimum operating voltage	80VAC			
	Turn off voltage	20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R40, Z40 : 30±1ms			
	Circuit control	Z40 : Zero cross type R40 : Random cross type			
	Operating temperature	-10 ~ +60°C			
	Storage temperature	-20 ~ +80°C			
	Weight	5.2kg			

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYG AC220V 15A~40A "B" Contact (DC/AC Type)

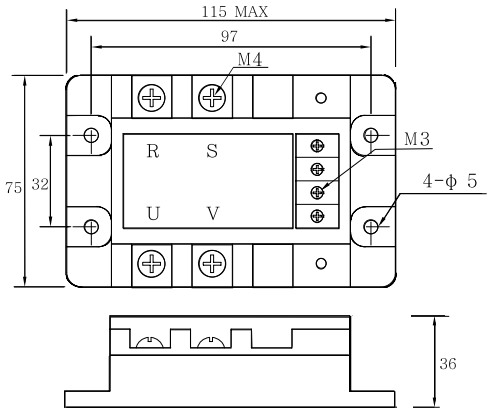
Metal Bonding Process

"B" 접점형 ("B" Contact)

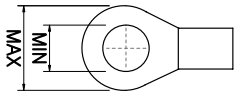
이 SSR은 일반적인 SSR과 반대로 제어입력 ON시 접점출력은 OFF가 되고 제어입력 OFF시에 접점출력은 ON이 되는 B접점 SSR로서 전류용량은 단상 15/25/40A입니다.

This SSR is opposite mode of operation compare general SSR as output is OFF at control input ON and output is ON at control input OFF that's B contact SSR, current capacity is single phase 15/25/40A prepared.

Dimension



Terminal

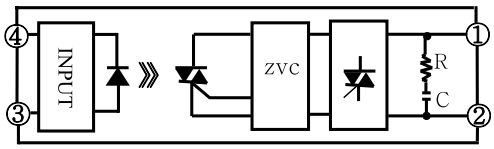


Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

Specifications

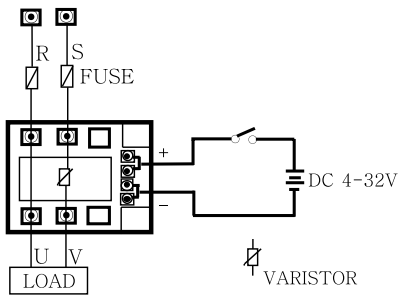
ITEM \ MODEL		WYG1C15 / 25 / 40Z4B		
OUTPUT	Rated voltage	220VAC		
	Voltage range	90 ~ 240VAC		
	Non repetitive peak voltage	600V		
	Rated load current	15A	25A	40A
	Frequency	50 / 60Hz		
	Peak surge current	160A	250A	420A
	leakage current	10mA		
	Contact voltage drop	1.5V	1.8V	1.8V
	Minimum operating current	1.0A		
INPUT	Maximum input voltage	32VDC		
	Input voltage range	4 ~ 32VDC		
	Input current	10±3(mA)		
	Minimum operating voltage	3.0VDC		
	Turn off voltage	1.4VDC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	Z4 : 8.3±1ms		
	Circuit control	Z4 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	0.1kg		

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYG AC220V 15A~40A "B" Contact (AC/AC Type)

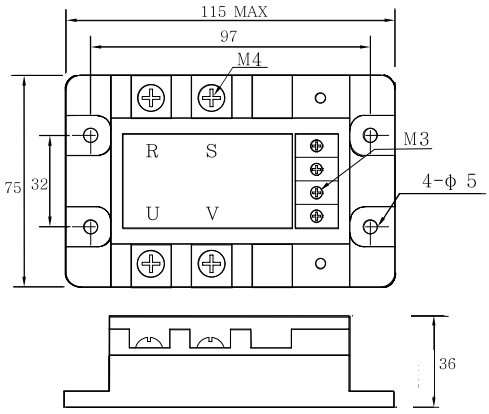
Metal Bonding Process

"B" 접점형 ("B" Contact)

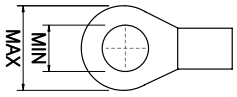
이 SSR은 일반적인 SSR과 반대로 제어입력 ON시 접점출력은 OFF가 되고 제어입력 OFF시에 접점출력은 ON이 되는 B접점 SSR로서 전류용량은 단상 15/25/40A입니다.

This SSR is opposite mode of operation compare general SSR as output is OFF at control input ON and output is ON at control input OFF that's B contact SSR, current capacity is single phase 15/25/40A prepared.

Dimension



Terminal

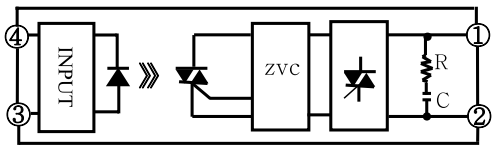


Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

Specifications

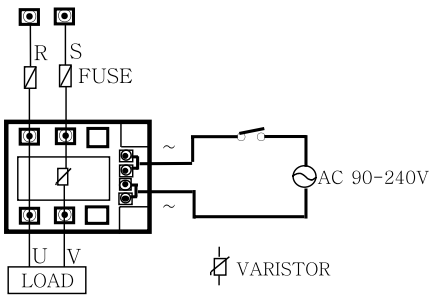
ITEM	MODEL	WYG1C15 / 25 / 40Z40B		
OUTPUT	Rated voltage	220VAC		
	Voltage range	90 ~ 240VAC		
	Non repetitive peak voltage	600V		
	Rated load current	15A	25A	40A
	Frequency	50 / 60Hz		
	Peak surge current	160A	250A	420A
	leakage current	10mA		
	Contact voltage drop	1.5V	1.8V	1.8V
	Minimum operating current	1.0A		
INPUT	Maximum input voltage	240VAC		
	Input voltage range	90 ~ 240VAC		
	Input current	16mA±3mA(240VAC)		
	Minimum operating voltage	85VAC		
	Turn off voltage	20VAC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	Z40 : 30±1ms		
	Circuit control	Z40 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	0.1kg		

Block Diagram



* ZVC : ZERO CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYN3G AC220V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

표준형(Standard Type)

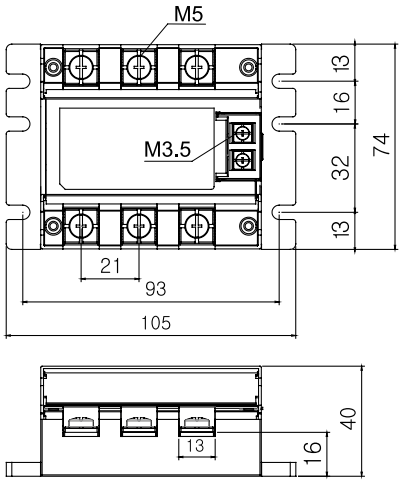
삼상 표준형으로 제작된 제품으로 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~240V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 일반형 SSR 입니다.

- cUL 규격인증품 : . UL508

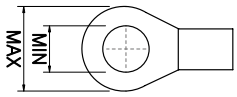
This is a 3-phase standard type product. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~240V, 10-80A It is an general type SSR is equipped with LED according to input control.

- cUL Std. No:. UL508

Dimension



Terminal



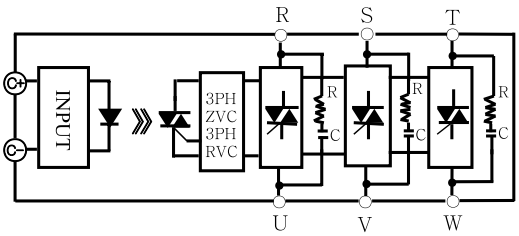
Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Specifications

※ cUL Certificatied

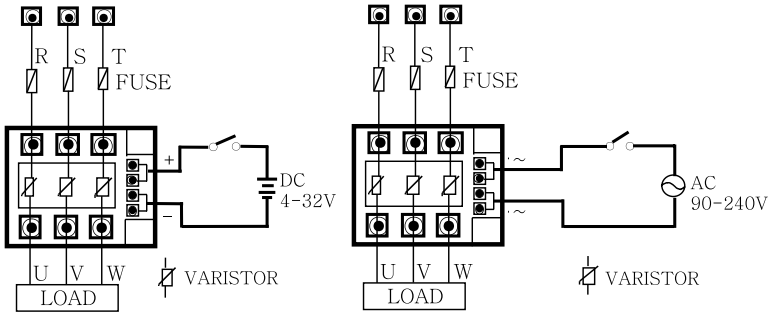
ITEM	MODEL	※WYN3G3C10/15/20/25/30/40Z4 WYN3G3C50/60/80Z4					WYN3G3C10/15/20/25/30/40Z40 WYN3G3C50/60/80Z40			
		WYN3G3C10/15/20/25/30/40R4 WYN3G3C50/60/80R4					WYN3G3C10/15/20/25/30/40R40 WYN3G3C50/60/80R40			
OUTPUT	Rated voltage	220VAC								
	Voltage range	90 ~ 240VAC								
	Non repetitive peak voltage	600V								
	Rated load current	10A	15A	20A	25A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz								
	Peak surge current	125A	160A	260A	260A	420A	420A	480A	480A	480A
	leakage current	10mA								
	Contact voltage drop	1.5V	1.7V	1.8V	1.8V	1.8V	1.8V	2.0V	2.0V	2.0V
	Minimum operating current	1.0A								
INPUT	Maximum input voltage	32VDC					240VAC			
	Input voltage range	4 ~ 32VDC					90 ~ 240VAC			
	Input current	10mA					16.3mA(MAX)			
	Minimum operating voltage	3.0VDC					85VAC			
	Turn off voltage	1.4VDC					20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min								
	Insulation resistance	DC 500V / 100MΩ								
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms								
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type								
	Operating temperature	−10 ~ +60°C								
	Storage temperature	−20 ~ +80°C								
	Weight	0.3kg								

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYN3H AC440V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

표준형(Standard Type)

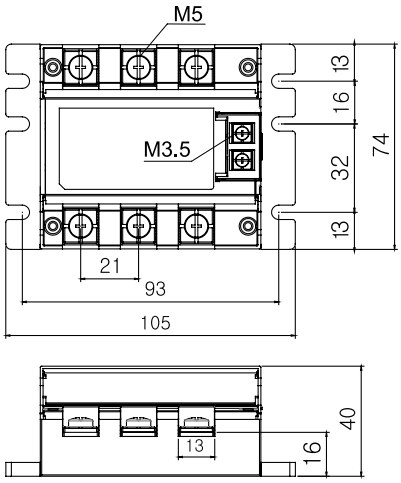
삼상 표준형으로 제작된 제품으로 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~480V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 일반형 SSR 입니다.

- cUL 규격인증품 : . UL508

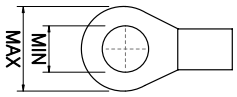
This is a 3-phase standard type product. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~480V, 10-80A It is an general type SSR is equipped with LED according to input control.

- cUL Std.No:.UL508

Dimension



Terminal



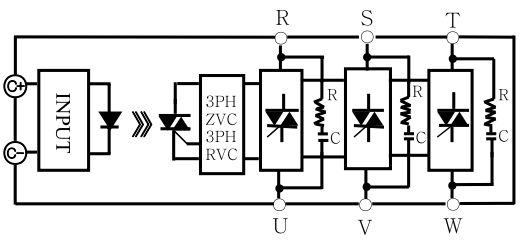
Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Specifications

※ cUL Certificatied

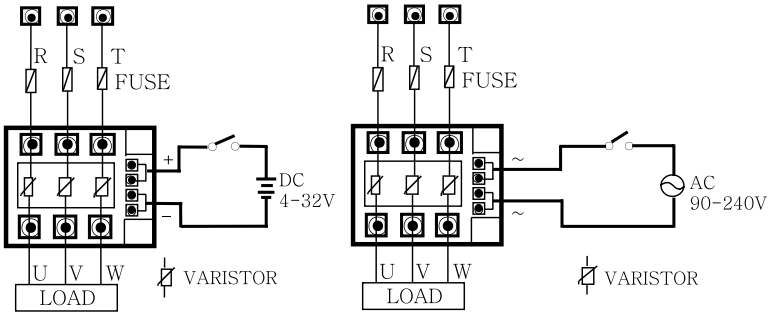
ITEM	MODEL	※WYN3H3C10/15/20/25/30/40Z4 WYN3H3C50/60/80Z4					WYN3H3C10/15/20/25/30/40Z40 WYN3H3C50/60/80Z40			
		WYN3H3C10/15/20/25/30/40R4 WYN3H3C50/60/80R4					WYN3H3C10/15/20/25/30/40R40 WYN3H3C50/60/80R40			
OUTPUT	Rated voltage	440VAC								
	Voltage range	90 ~ 480VAC								
	Non repetitive peak voltage	1200VAC								
	Rated load current	10A	15A	20A	25A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz								
	Peak surge current	125A	160A	260A	260A	420A	420A	480A	480A	480A
	leakage current	10mA								
	Contact voltage drop	1.5V	1.7V	1.8V	1.8V	1.8V	1.8V	2.0V	2.0V	2.0V
	Minimum operating current	1.0A								
INPUT	Maximum input voltage	32VDC					240VAC			
	Input voltage range	4 ~ 32VDC					90 ~ 240VAC			
	Input current	10±3(mA)					16.3mA(MAX)			
	Minimum operating voltage	3.0VDC					85VAC			
	Turn off voltage	1.4VDC					20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min								
	Insulation resistance	DC 500V / 100MΩ								
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms								
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type								
	Operating temperature	−10 ~ +60°C								
	Storage temperature	−20 ~ +80°C								
	Weight	0.3kg								

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYL3G AC220V 10A~80A (DC/AC, AC/AC Type)

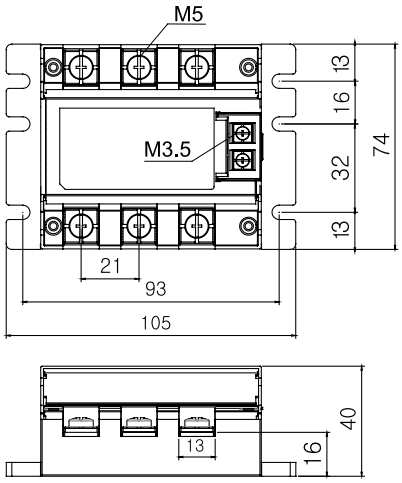
Metal Bonding Process

경제형(Economy Type)

본 제품 시리즈는 경제형으로 제품의 높이를 SLIM화하여 타 제품보다 약 10mm가량 낮게 제작된 SSR로 보호커버 및 외형의 디자인을 보다 세련되게 제작되었으며 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~240V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 경제형 SSR 입니다.

These product series are economic SSR types. The product height has been reduced by approximately 10mm compared with that of other products where the design of the protective cover and the external view have been made in a more sophisticated style. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~240V, 10-80A. It is an economic type SSR equipped with LED according to input control.

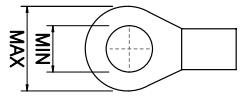
Dimension



Specifications

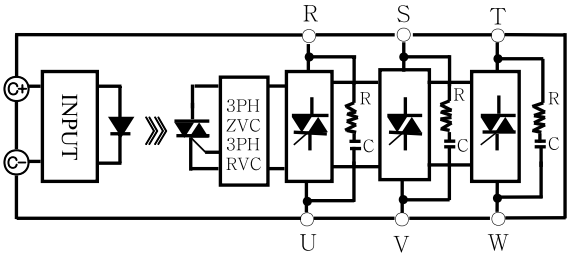
ITEM	MODEL	WYL3G3C10/15/20/25/30/40Z4 WYL3G3C50/60/80Z4 WYL3G3C10/15/20/25/30/40R4 WYL3G3C50/60/80R4					WYL3G3C10/15/20/25/30/40Z40 WYL3G3C50/60/80Z40 WYL3G3C10/15/20/25/30/40R40 WYL3G3C50/60/80R40			
OUTPUT	Rated voltage	220VAC								
	Voltage range	90 ~ 240VAC								
	Non repetitive peak voltage	600VAC								
	Rated load current	10A	15A	20A	25A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz								
	Peak surge current	125A	160A	300A	300A	315A	315A	350A	400A	450A
	leakage current	10mA								
	Contact voltage drop	1.5V	1.7V	1.8V	1.8V	1.8V	1.8V	2.0V	2.5V	3.0V
	Minimum operating current	1.0A								
INPUT	Maximum input voltage	32VDC					240VAC			
	Input voltage range	4 ~ 32VDC					90 ~ 240VAC			
	Input current	10±3(mA)					16mA(MAX)			
	Minimum operating voltage	3.0VDC					85VAC			
	Turn off voltage	1.4VDC					20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min								
	Insulation resistance	DC 500V / 100MΩ								
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms								
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type								
	Operating temperature	−10 ~ +60°C								
	Storage temperature	−20 ~ +80°C								
	Weight	0.4kg								

Terminal



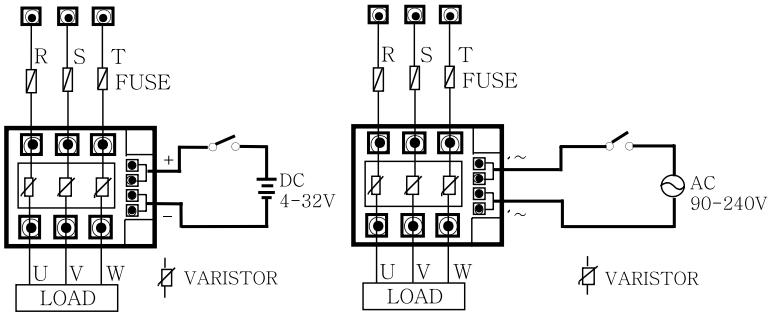
Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYL3H AC440V 10A~80A (DC/AC, AC/AC Type)

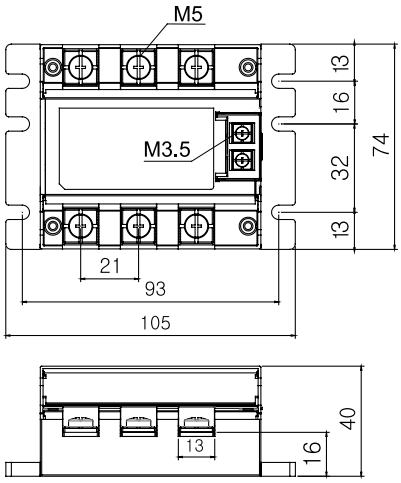
Metal Bonding Process

경제형(Economy Type)

본 제품 시리즈는 경제형으로 제품의 높이를 SLIM화하여 타 제품보다 약 10mm가량 낮게 제작된 SSR로 보호커버 및 외형의 디자인을 보다 세련되게 제작되었으며 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~480V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 경제형 SSR 입니다.

These product series are economic SSR types. The product height has been reduced by approximately 10mm compared with that of other products where the design of the protective cover and the external view have been made in a more sophisticated style. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~480V, 10-80A. It is an economic type SSR equipped with LED according to input control.

Dimension

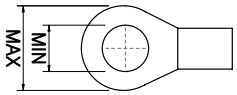


125	160	300	300	315	315	350	400	450

Specifications

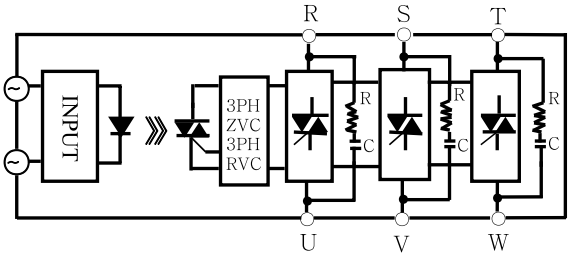
ITEM		MODEL	WYL3H3C10/15/20/25/30/40Z4 WYL3H3C50/60/80Z4 WYL3H3C10/15/20/25/30/40R4 WYL3H3C50/60/80R4					WYL3H3C10/15/20/25/30/40Z40 WYL3H3C50/60/80Z40 WYL3H3C10/15/20/25/30/40R40 WYL3H3C50/60/80R40				
OUTPUT	Rated voltage		440VAC									
	Voltage range		90 ~ 480VAC									
	Non repetitive peak voltage		1200VAC									
	Rated load current		10A	15A	20A	25A	30A	40A	50A	60A	80A	
	Frequency		50 / 60Hz									
	Peak surge current		125A	160A	300A	300A	315A	315A	350A	400A	450A	
	leakage current		10mA									
	Contact voltage drop		1.5V	1.7V	1.8V	1.8V	1.8V	1.8V	2.0V	2.5V	3.0V	
	Minimum operating current		1.0A									
INPUT	Maximum input voltage		32VDC					240VAC				
	Input voltage range		4 ~ 32VDC					90 ~ 240VAC				
	Input current		10±3(mA)					16±3(mA)				
	Minimum operating voltage		3.0VDC					85VAC				
	Turn off voltage		1.4VDC					20VAC				
GENERAL	Dielectric withstand		2000VAC / rms / 1Min									
	Insulation resistance		DC 500V / 100MΩ									
	Response time		R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms									
	Circuit control		Z40, Z4 : Zero cross type R40, R4 : Random cross type									
	Operating temperature		−10 ~ +60°C									
	Storage temperature		−20 ~ +80°C									
	Weight		0.4kg									

Terminal



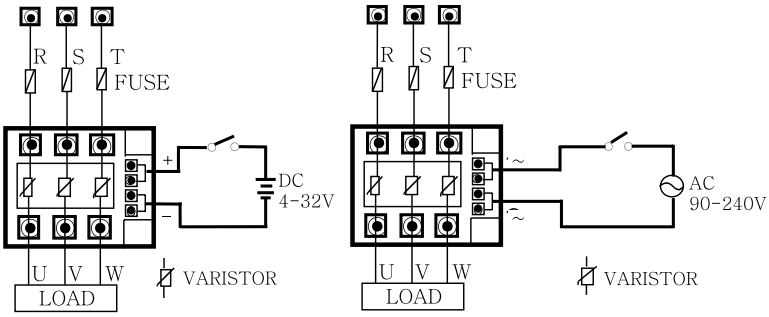
Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WY3G AC220V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

일반형(General Type)

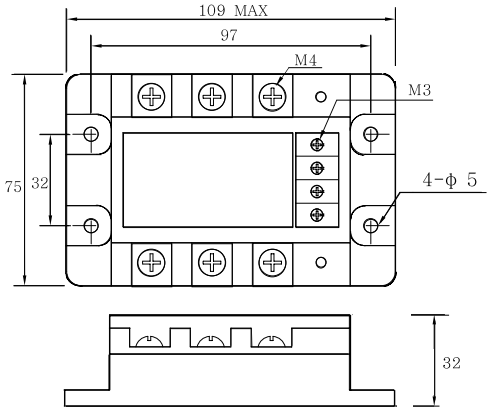
삼상 일반형으로 제작된 제품으로 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~240V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 일반형 SSR 입니다.

- cUL 규격인증품 : . UL508

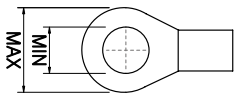
This is a 3-phase general type product. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~220V, 10-80A It is an general type SSR is equipped with LED according to input control.

- cUL Std.No:.UL508

Dimension



Terminal



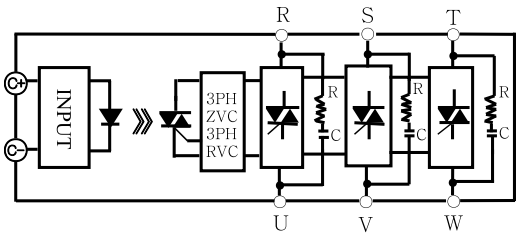
Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

Specifications

※ cUL Certificatied

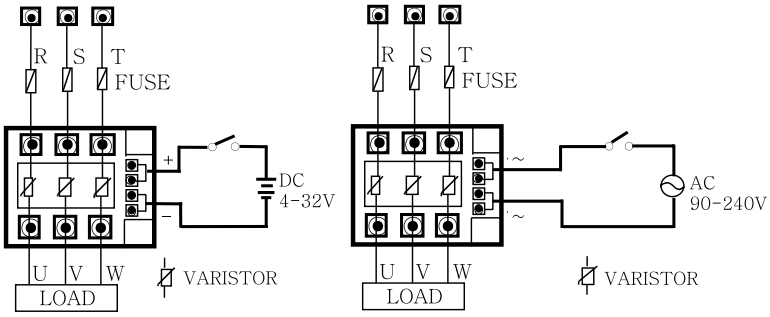
ITEM	MODEL	※WY3G3C10/20/30/40Z4 WY3G3C50/60/80Z4						WY3G3C10/20/30/40Z40 WY3G3C50/60/80Z40
		WY3G3C10/20/30/40R4 WY3G3C50/60/80R4						WY3G3C10/20/30/40R40 WY3G3C50/60/80R40
OUTPUT	Rated voltage	220VAC						
	Voltage range	90 ~ 240VAC						
	Non repetitive peak voltage	600V						
	Rated load current	15A	20A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz						
	Peak surge current	160A	260A	420A	420A	480A	480A	480A
	leakage current	10mA						
	Contact voltage drop	1.7V	1.8V	1.8V	1.8V	2.0V	2.0V	2.0V
	Minimum operating current	1.0A						
INPUT	Maximum input voltage	32VDC				240VAC		
	Input voltage range	4 ~ 32VDC				90 ~ 240VAC		
	Input current	10mA				16mA(MAX)		
	Minimum operating voltage	3.0VDC				85VAC		
	Turn off voltage	1.4VDC				20VAC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min						
	Insulation resistance	DC 500V / 100MΩ						
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30 ±1ms						
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type						
	Operating temperature	−10 ~ +60°C						
	Storage temperature	−20 ~ +80°C						
	Weight	0.4kg						

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WY3H AC440V 10A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

일반형(General Type)

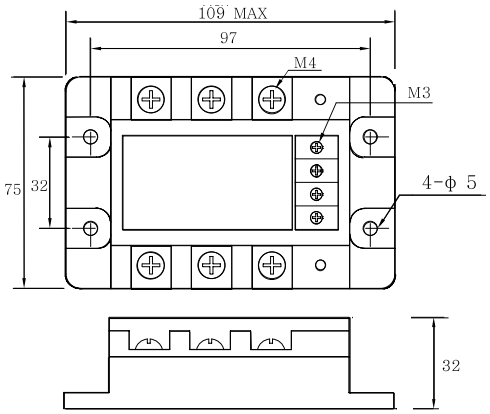
삼상 일반형으로 제작된 제품으로 고신뢰성 부품을 선정하여 전기적 내환경을 강화한 제품으로 AC90~480V, 10~80A의 용량을 가지고 있으며 입력측에 LED 표시장치가 있는 일반형 SSR 입니다.

- cUL 규격인증품 : . UL508

This is a 3-phase general type product. This product featuring electric and environmental resistance reinforced by using highly reliable parts carries a capacity of AC90~480V, 10-40A It is an general type SSR is equipped with LED according to input control.

- cUL Std. No:. UL508

Dimension

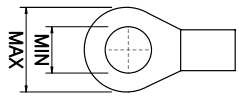


Specifications

※ cUL Certificatied

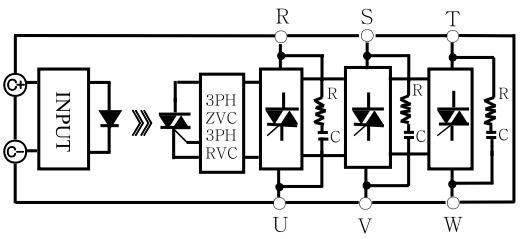
ITEM \ MODEL		※WY3H3C10/20/30/40Z4 WY3H3C50/60/80Z4				WY3H3C10/20/30/40Z40 WY3H3C50/60/80Z40		
		WY3H3C10/20/30/40R4 WY3H3C50/60/80R4				WY3H3C10/20/30/40R40 WY3H3C50/60/80R40		
OUTPUT	Rated voltage	440VAC						
	Voltage range	90 ~ 480VAC						
	Non repetitive peak voltage	800 / 1200V						
	Rated load current	15A	20A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz						
	Peak surge current	160A	260A	420A	420A	480A	480A	480A
	leakage current	10mA						
	Contact voltage drop	1.7V	1.8V	1.8V	1.8V	2.0V	2.0V	2.0V
	Minimum operating current	1.0A						
INPUT	Maximum input voltage	32VDC				240VAC		
	Input voltage range	4 ~ 32VDC				90 ~ 240VAC		
	Input current	10mA				16mA(MAX)		
	Minimum operating voltage	3.0VDC				85VAC		
	Turn off voltage	1.4VDC				20VAC		
GENERAL	Dielectric withstand	2000VAC / rms / 1Min						
	Insulation resistance	DC 500V / 100MΩ						
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms						
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type						
	Operating temperature	−10 ~ +60°C						
	Storage temperature	−20 ~ +80°C						
	Weight	0.4kg						

Terminal



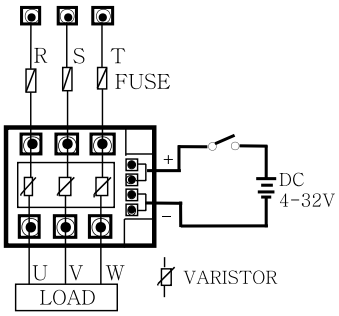
Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

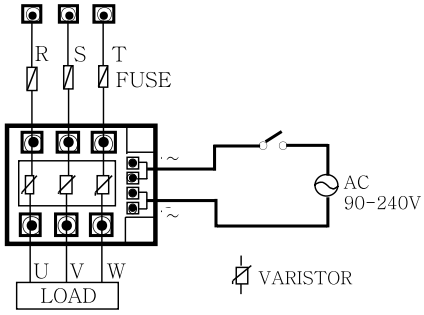
Block Diagram



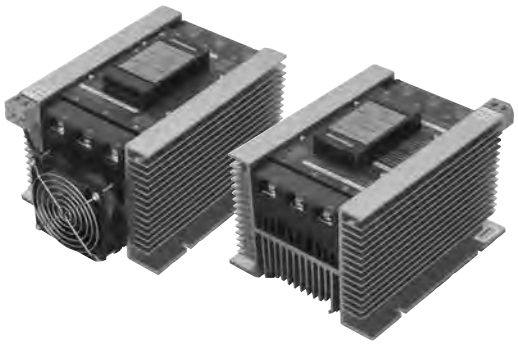
* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit





3Ø WYFM3G AC220V 60A~150A (DC/AC Type)

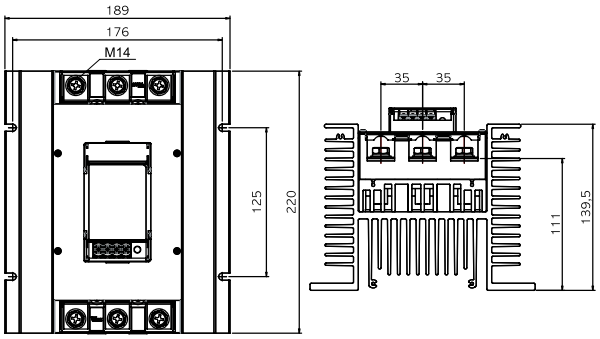


방열판 일체형 (SSR/FAN/Heat Sink Type)

FAN 부착형 방열판 삼상 일체형으로 AC90~240V, 60~150A의 대용량 제품으로 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

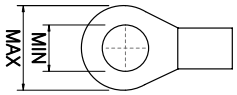
This integral type SSR with fan and heat sink is a product of large capacity of AC90~480V, 60~150A. This SSR has designed self heat sink without attaching to ensure convenient use.

Dimension



60A는 FAN 미부착, 80A 이상은 FAN 부착
Install Fan of over 80A
FAN : AC220V, *option : DC12 or 24V

Terminal

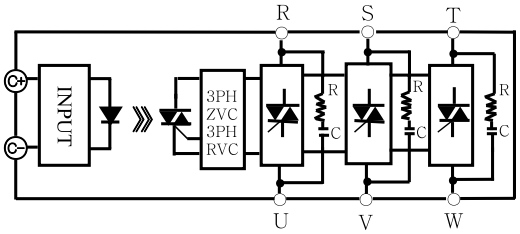


Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 8

Specifications

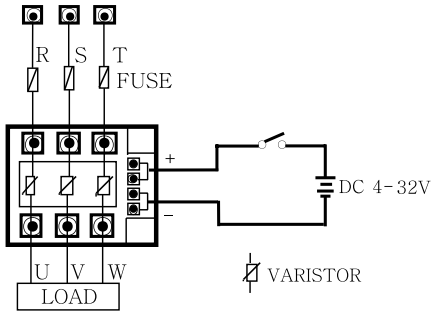
ITEM \ MODEL		WYFM3G3C60 / 80 / 100 / 150Z4 WYFM3G3C60 / 80 / 100 / 150R4			
OUTPUT	Rated voltage	220VAC			
	Voltage range	90 ~ 240VAC			
	Non repetitive peak voltage	600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50 / 60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	32VDC			
	Input voltage range	4 ~ 32VDC			
	Input current	10±3(mA)			
	Minimum operating voltage	3.0VDC			
	Turn off voltage	1.4VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R4 : 1ms Z4 : 8.3±1ms			
	Circuit control	Z4 : Zero cross type R4 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	5.6kg			

Block Diagram

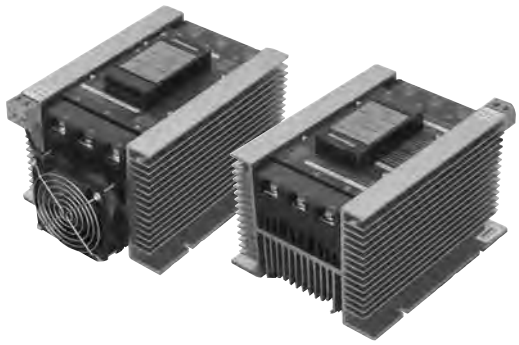


* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYFM3G AC220V 60A~150A (AC/AC Type)

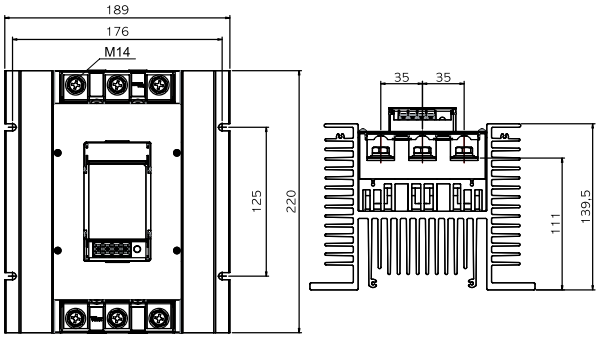


방열판 일체형 (SSR/FAN/Heat Sink Type)

FAN 부착형 방열판 삼상 일체형으로 AC90~240V, 60~150A의 대용량 제품으로 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

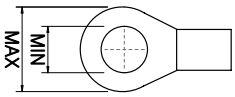
This integral type SSR with fan and heat sink is a product of large capacity of AC90~240V, 60~150A. This SSR has designed self heat sink without attaching to ensure convenient use.

Dimension



60A는 FAN 미부착, 80A 이상은 FAN 부착
Install Fan of over 80A
FAN : AC220V, *option : DC12 or 24V

Terminal

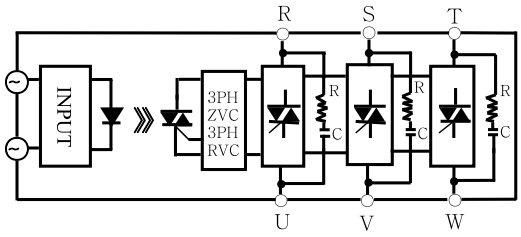


Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 8

Specifications

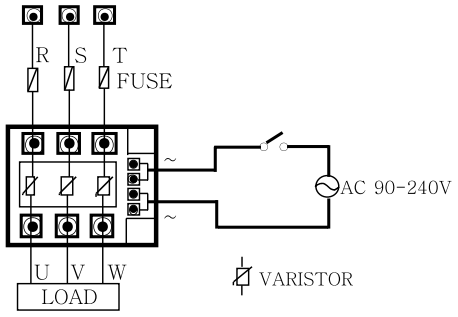
ITEM	MODEL	WYFM3G3C60 / 80 / 100 / 150Z40 WYFM3G3C60 / 80 / 100 / 150R40			
OUTPUT	Rated voltage	220VAC			
	Voltage range	90 ~ 240VAC			
	Non repetitive peak voltage	600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50 / 60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	240VAC			
	Input voltage range	90 ~ 240VAC			
	Input current	16mA±3mA(240VAC)			
	Minimum operating voltage	85VAC			
	Turn off voltage	20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R40, Z40 : 30±1ms			
	Circuit control	Z40 : Zero cross type R40 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	5.6kg			

Block Diagram

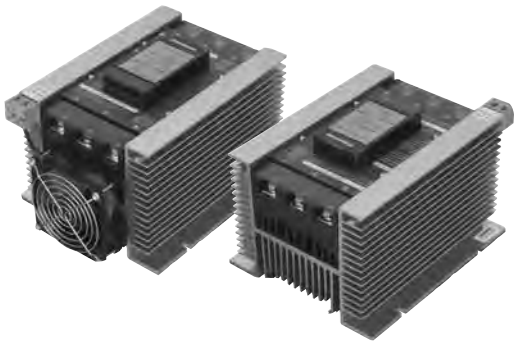


* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYFM3H AC440V 60A~150A (DC/AC Type)

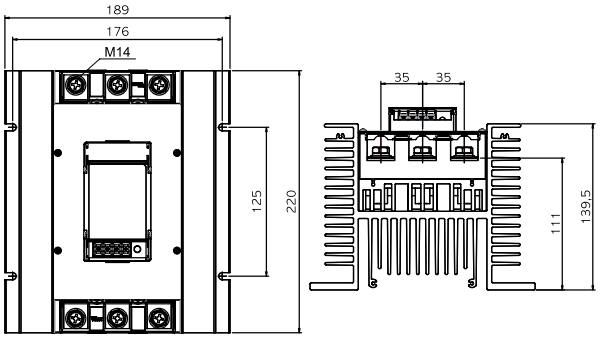


방열판 일체형 (SSR/FAN/Heat Sink Type)

FAN 부착형 방열판 삼상 일체형으로 AC90~480V, 60~150A의 대용량 제품으로 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

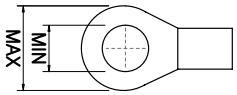
This integral type SSR with fan and heat sink is a product of large capacity of AC90~480V, 60~150A. This SSR has designed self heat sink without attaching to ensure convenient use.

Dimension



60A는 FAN 미부착, 80A 이상은 FAN 부착
Install Fan of over 80A
FAN : AC220V, *option : DC12 or 24V

Terminal

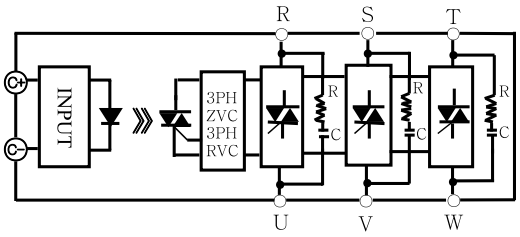


Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 8

Specifications

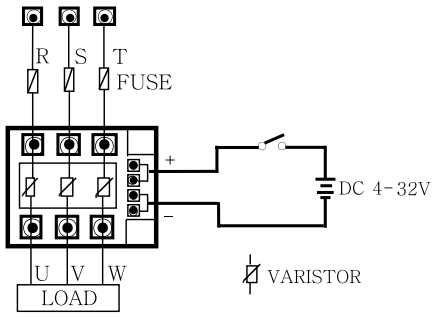
ITEM \ MODEL		WYFM3H3C60 / 80 / 100 / 150Z4 WYFM3H3C60 / 80 / 100 / 150R4			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90 ~ 480VAC			
	Non repetitive peak voltage	600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50 / 60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	32VDC			
	Input voltage range	4 ~ 32VDC			
	Input current	10±3(mA)			
	Minimum operating voltage	3.0VDC			
	Turn off voltage	1.4VDC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R4 : 1ms Z4 : 8.3±1ms			
	Circuit control	Z4 : Zero cross type R4 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	5.6kg			

Block Diagram

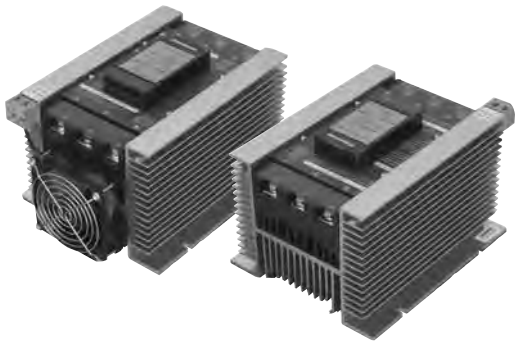


* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYFM3H AC440V 60A~150A (AC/AC Type)

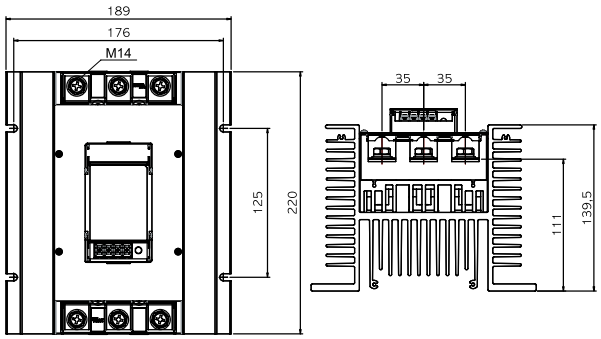


방열판 일체형 (SSR/FAN/Heat Sink Type)

FAN 부착형 방열판 삼상 일체형으로 AC90~480V, 60~150A의 대용량 제품으로 자체 방열을 설계하여 편리하게 사용할 수 있도록 일체화시킨 일체형 SSR 입니다.

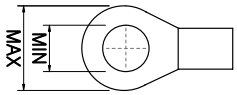
This integral type SSR with fan and heat sink is a product of large capacity of AC90~480V, 60~150A. This SSR has designed self heat sink without attaching to ensure convenient use.

Dimension



60A는 FAN 미부착, 80A 이상은 FAN 부착
Install Fan of over 80A
FAN : AC220V, *option : DC12 or 24V

Terminal

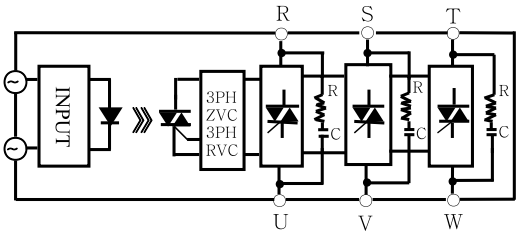


Input Ter : Max 6.2, Min 3
Output Ter : Max 20, Min 8

Specifications

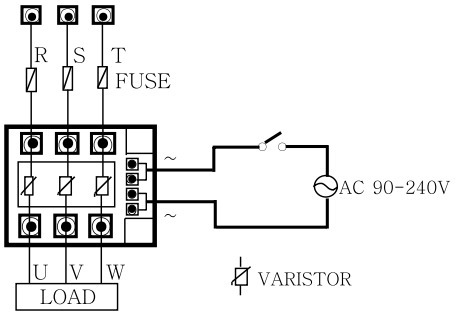
ITEM \ MODEL		WYFM3H3C60 / 80 / 100 / 150Z40 WYFM3H3C60 / 80 / 100 / 150R40			
OUTPUT	Rated voltage	440VAC			
	Voltage range	90 ~ 480VAC			
	Non repetitive peak voltage	1600V			
	Rated load current	60A	80A	100A	150A
	Frequency	50 / 60Hz			
	Peak surge current	1300A	1750A	1950A	2550A
	leakage current	10mA			
	Contact voltage drop	1.95V	1.8V	1.8V	1.8V
	Minimum operating current	1.0A			
INPUT	Maximum input voltage	240VAC			
	Input voltage range	90 ~ 240VAC			
	Input current	16mA±3mA(240VAC)			
	Minimum operating voltage	85VAC			
	Turn off voltage	20VAC			
GENERAL	Dielectric withstand	2000VAC / rms / 1Min			
	Insulation resistance	DC 500V / 100MΩ			
	Response time	R40, Z40 : 30±1ms			
	Circuit control	Z40 : Zero cross type R40 : Random cross type			
	Operating temperature	−10 ~ +60°C			
	Storage temperature	−20 ~ +80°C			
	Weight	5.6kg			

Block Diagram



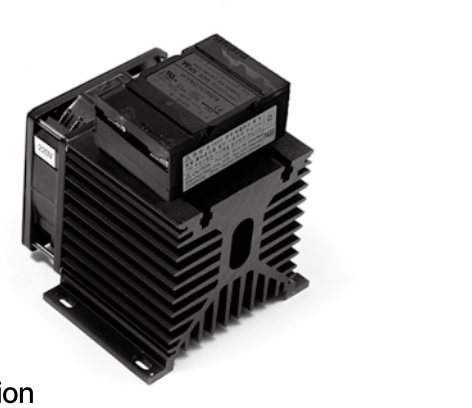
* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



1Ø WYFNG AC220V 30A~80A (DC/AC, AC/AC Type)

Metal Bonding Process

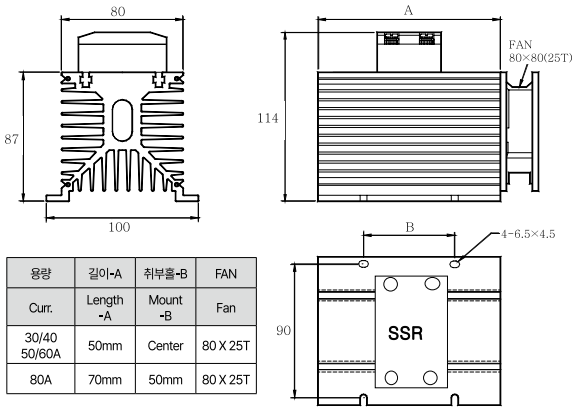


FAN 부착 일체형 (SSR)

단상 일체형으로 AC90~240V, 50~80A의 대용량 제품으로 방열판 및 FAN을 부착한 일체형으로 자체 방열 구조를 설계하여 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This single-phase integral SSR with self heat sink is a product with large capacity of AC90~240V, 50~80A. The SSR has designed self heat sink system to ensure convenient use.

Dimension



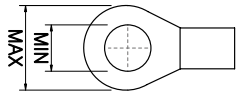
용량	길이-A	취부홀-B	FAN
Curr.	Length -A	Mount -B	Fan
30/40 50/60A	50mm	Center	80 X 25T
80A	70mm	50mm	80 X 25T

Specifications

ITEM \ MODEL		WYFNG1C30/40/50/60/80Z4 WYFNG1C30/40/50/60/80R4			WYFNG1C30/40/50/60/80Z40 WYFNG1C30/40/50/60/80R40	
OUTPUT	Rated voltage	220VAC				
	Voltage range	90 ~ 240VAC				
	Non repetitive peak voltage	600V				
	Rated load current	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz				
	Peak surge current	250A	300A	350A	1300A	1750A
	leakage current	10mA				
	Contact voltage drop	2.25V	2.15V	2.0V	1.95V	1.8V
	Minimum operating current	1.0A				
INPUT	Maximum input voltage	32VDC			240VAC	
	Input voltage range	4 ~ 32VDC			90 ~ 240VAC	
	Input current	10±3(mA)			AC240V / 16mA	
	Minimum operating voltage	3.0VDC			80VAC	
	Turn off voltage	1.4VDC			20VAC	
GENERAL	Dielectric withstand	2000VAC / 1Min				
	Insulation resistance	DC 500V / 100MΩ				
	Response time	R4 : 1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms				
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type				
	Operating temperature	−10 ~ +60°C				
	Storage temperature	−20 ~ +80°C				
	Weight	1.8kg				

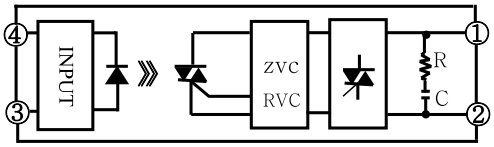
※Z4 : 4~32VDC Z40 : 90~240VAC

Terminal

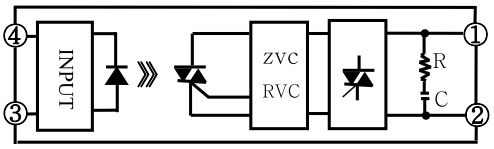


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Block Diagram



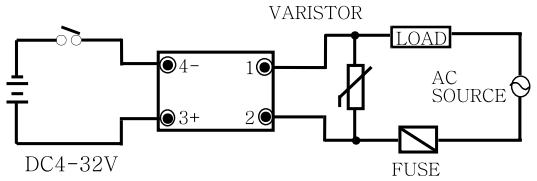
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT



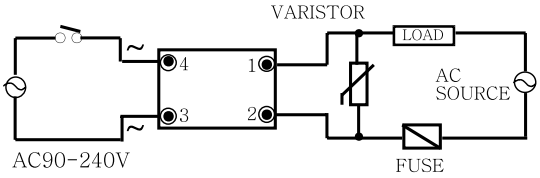
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit

DC/AC



AC/AC



1Ø WYFNH AC440V 30A~80A (DC/AC, AC/AC Type)

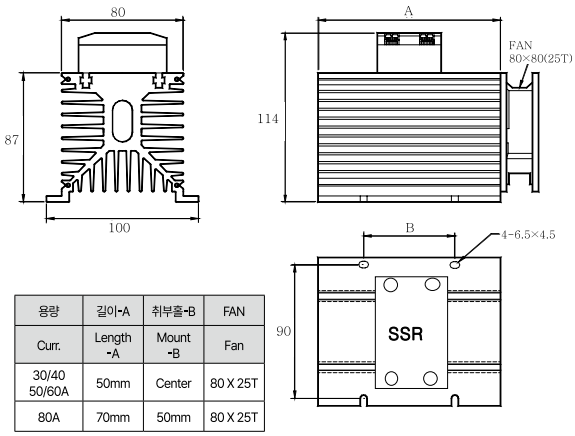
Metal Bonding Process

FAN 부착 일체형 (SSR)

단상 일체형으로 AC90~240V, 50~80A의 대용량 제품으로 방열판 및 FAN을 부착한 일체형으로 자체 방열 구조를 설계하여 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

This single-phase integral SSR with self heat sink is a product with large capacity of AC90~240V, 50~80A. The SSR has designed self heat sink system to ensure convenient use.

Dimension



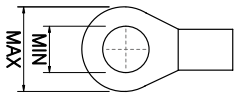
용량	길이-A	취부홀-B	FAN
Curr.	Length -A	Mount -B	Fan
30/40 50/60A	50mm	Center	80 X 25T
80A	70mm	50mm	80 X 25T

Specifications

ITEM \ MODEL		WYFNH1C30/40/50/60/80Z4 WYFNH1C30/40/50/60/80R4				WYFNH1C30/40/50/60/80Z40 WYFNH1C30/40/50/60/80R40
OUTPUT	Rated voltage	440VAC				
	Voltage range	90 ~ 480VAC				
	Non repetitive peak voltage	1200V				
	Rated load current	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz				
	Peak surge current	525A				
	leakage current	10mA				
	Contact voltage drop	1.8V(MAX)				
	Minimum operating current	1.0A				
INPUT	Maximum input voltage	32VDC				240VAC
	Input voltage range	4 ~32VDC				90~240VAC
	Input current	10±3(mA)				AC240V / 16mA
	Minimum operating voltage	3.0VDC				80VAC
	Turn off voltage	1.4VDC				20VAC
GENERAL	Dielectric withstand	2000VAC / 1Min				
	Insulation resistance	DC 500V / 100MΩ				
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms				
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type				
	Operating temperature	−10 ~ +60°C				
	Storage temperature	−20 ~ +80°C				
	Weight	1.8kg				

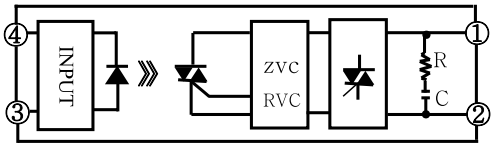
※Z4 : 4~32VDC Z40 : 90~240VAC

Terminal

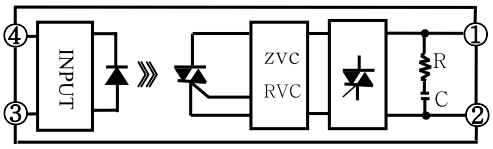


Input Ter : Max 9.5, Min 4
Output Ter : Max 9.5, Min 4

Block Diagram



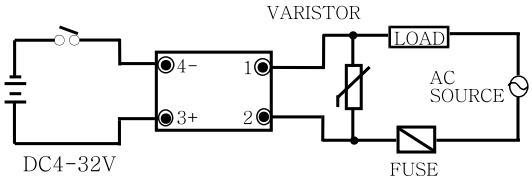
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT



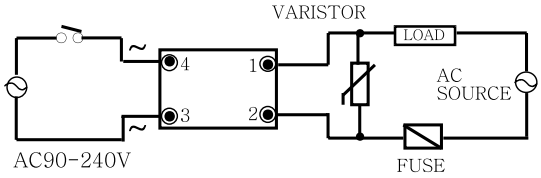
* ZVC : ZERO CROSS VOLTAGE CIRCUIT
* RVC : RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit

DC/AC



AC/AC



3Ø WYFN3G AC220V 30A~80A (DC/AC, AC/AC Type)

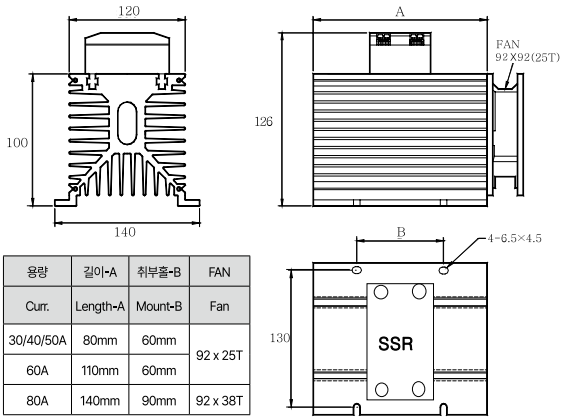
Metal Bonding Process

FAN 부착 일체형 (SSR)

삼상 일체형으로 AC90~240V, 50~80A의 대용량 제품으로 방열판 및 FAN을 부착한 일체형으로 자체 방열 구조를 설계하여 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

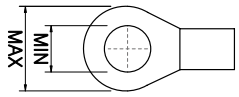
This single-phase integral SSR with self heat sink is a product with large capacity of AC90~240V, 50~80A. The SSR has designed self heat sink system to ensure convenient use.

Dimension



용량	길이-A	취부홀-B	FAN
Curr.	Length-A	Mount-B	Fan
30/40/50A	80mm	60mm	92 x 25T
60A	110mm	60mm	
80A	140mm	90mm	92 x 38T

Terminal



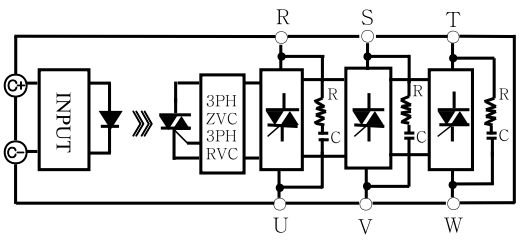
Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

Specifications

ITEM \ MODEL		WYFN3G3C30/40/50/60/80Z4 WYFN3G3C30/40/50/60/80R4		WYFN3G3C30/40/50/60/80Z40 WYFN3G3C30/40/50/60/80R40		
OUTPUT	Rated voltage	220VAC				
	Voltage range	90 ~ 240VAC				
	Non repetitive peak voltage	600V				
	Rated load current	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz				
	Peak surge current	250A	300A	350A	1300A	1750A
	leakage current	10mA				
	Contact voltage drop	2.25V	2.15V	2.0V	1.95V	1.8V
	Minimum operating current	1.0A				
INPUT	Maximum input voltage	32VDC		240VAC		
	Input voltage range	4 ~ 32VDC		90 ~ 240VAC		
	Input current	10±3(mA)		AC240V / 16mA		
	Minimum operating voltage	3.0VDC		80VAC		
	Turn off voltage	1.4VDC		20VAC		
GENERAL	Dielectric withstand	2000VAC / 1Min				
	Insulation resistance	DC 500V / 100MΩ				
	Response time	R4 : 1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms				
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type				
	Operating temperature	−10 ~ +60°C				
	Storage temperature	−20 ~ +80°C				
	Weight	2.8kg				

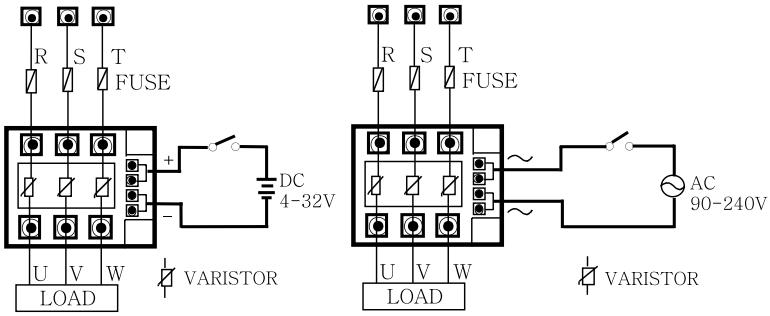
※Z4 : 4~32VDC Z40 : 90~240VAC

Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit



3Ø WYFN3H AC440V 30A~80A (DC/AC, AC/AC Type)

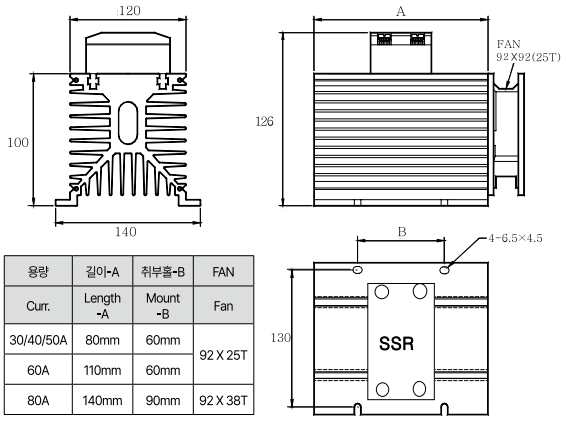
Metal Bonding Process

FAN 부착 일체형 (SSR)

삼상 일체형으로 AC90~240V, 50~80A의 대용량 제품으로 방열판 및 FAN을 부착한 일체형으로 자체 방열 구조를 설계하여 편리하게 사용할 수 있도록 일체화시킨 SSR 입니다.

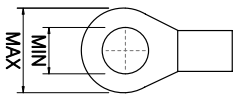
This single-phase integral SSR with self heat sink is a product with large capacity of AC90~240V, 50~80A. The SSR has designed self heat sink system to ensure convenient use.

Dimension



용량	길이-A	취부홀-B	FAN
Curr.	Length -A	Mount -B	Fan
30/40/50A	80mm	60mm	92 X 25T
60A	110mm	60mm	
80A	140mm	90mm	92 X 38T

Terminal



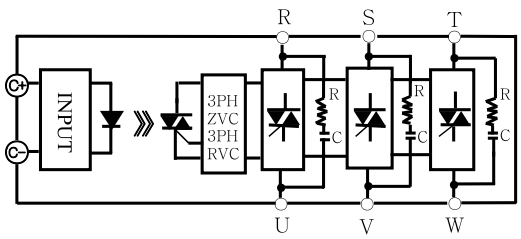
Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

Specifications

ITEM \ MODEL		WYFN3H3C30/40/50/60/80Z4 WYFN3H3C30/40/50/60/80R4				WYFN3H3C30/40/50/60/80Z40 WYFN3H3C30/40/50/60/80R40
OUTPUT	Rated voltage	440VAC				
	Voltage range	90 ~ 480VAC				
	Non repetitive peak voltage	1200V				
	Rated load current	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz				
	Peak surge current	250A	300A	350A	1300A	1750A
	leakage current	10mA				
	Contact voltage drop	2.25V	2.15V	2.0V	1.95V	1.8V
	Minimum operating current	1.0A				
INPUT	Maximum input voltage	32VDC				240VAC
	Input voltage range	4 ~ 32VDC				90 ~ 240VAC
	Input current	10±3(mA)				AC240V / 16mA
	Minimum operating voltage	3.0VDC				80VAC
	Turn off voltage	1.4VDC				20VAC
GENERAL	Dielectric withstand	2000VAC / 1Min				
	Insulation resistance	DC 500V / 100MΩ				
	Response time	R4 : 1±1ms Z4 : 8.3±1ms R40, Z40 : 30±1ms				
	Circuit control	Z40, Z4 : Zero cross type R40, R4 : Random cross type				
	Operating temperature	−10 ~ +60°C				
	Storage temperature	−20 ~ +80°C				
	Weight	2.8kg				

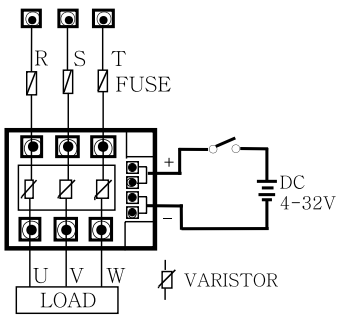
※Z4 : 4~32VDC Z40 : 90~240VAC

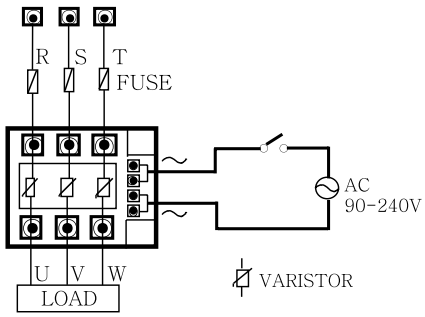
Block Diagram



* 3PH ZVC : 3PH ZERO CROSS VOLTAGE CIRCUIT
* 3PH RVC : 3PH RANDOM CROSS VOLTAGE CIRCUIT

Application Circuit





3Ø WY3G (모터 정,역 유니트 일체형) AC220V 15A~40A

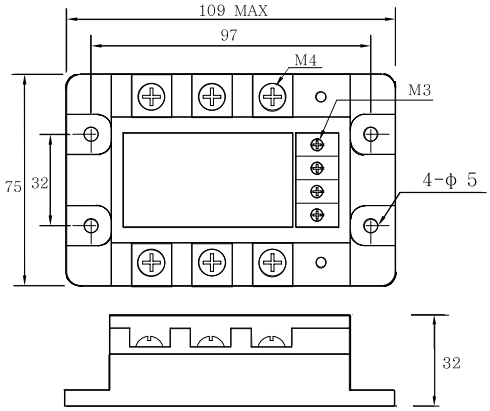
Metal Bonding Process

정,역형(Forward, Reverse Type)

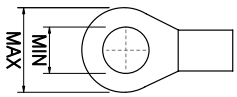
본 제품은 MOTOR 부하의 정, 역 회전에 사용되는 제품으로 AC220, 380, 440V 부하에 사용되며 15, 25, 40A의 3종류가 있는 정, 역 유니트 일체형 SSR 입니다

This product is used for the forward and reverse rotation of the motor load. A forward and reverse unit integrated SSR, the product is classified into 3 types: 15, 25 and 40A.

Dimension



Terminal

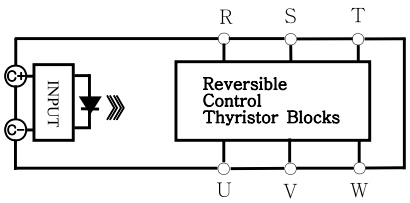


Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

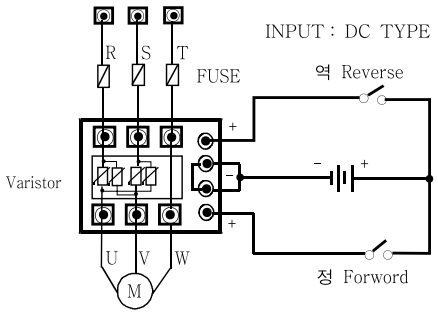
Specifications

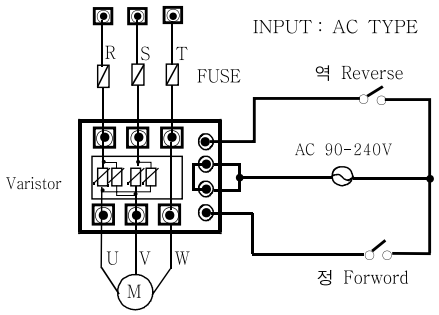
ITEM	MODEL	WY3G2PC15 / 25 / 40R4 (INPUT DC) WY3G2PC15 / 25 / 40R40 (INPUT AC)		
OUTPUT	Rated voltage	220VAC		
	Voltage range	90 ~ 240VAC		
	Non repetitive peak voltage	600V		
	Rated load current	15A	25A	40A
	Frequency	50 / 60Hz		
	Peak surge current	125A	260A	300A
	leakage current	10mA		
	Contact voltage drop	1.5V	1.7V	1.8V
	Minimum operating current	1.0A		
INPUT	Maximum input voltage	32VDC	240VAC	
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC	
	Input current	20±2(mA)		
	Minimum operating voltage	3.5VDC	85VAC	
	Turn off voltage	0.9VDC	10VAC	
GENERAL	Dielectric withstand	2000VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	8.3±1ms		
	Circuit control	R40, R4 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	0.3kg		

Block Diagram



Application Circuit





3Ø WY3H (모터 정,역 유니트 일체형) AC380/440V 15A~40A

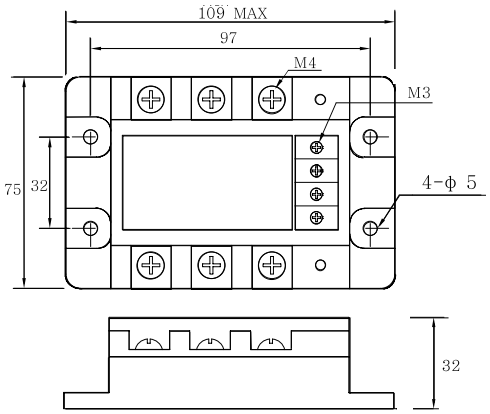
Metal Bonding Process

정,역형(Forward, Reverse Type)

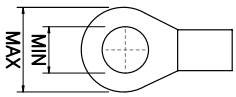
본 제품은 MOTOR 부하의 정, 역 회전에 사용되는 제품으로 AC220, 380, 440V 부하에 사용되며 15, 25, 40A의 3종류가 있는 정, 역 유니트 일체형 SSR 입니다

This product is used for the forward and reverse rotation of the motor load. A forward and reverse unit integrated SSR, the product is classified into 3 types: 15, 25 and 40A.

Dimension



Terminal

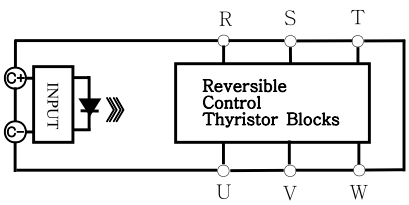


Input Ter : Max 6.2, Min 3
Output Ter : Max 12, Min 4

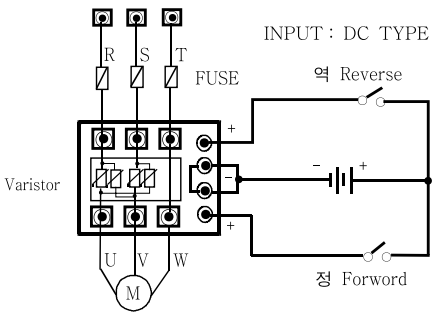
Specifications

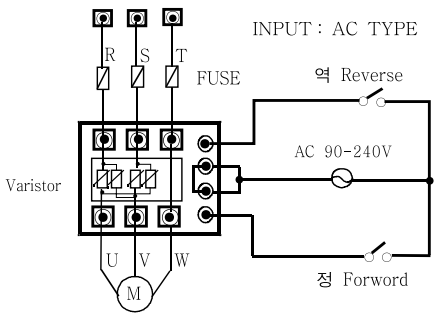
ITEM	MODEL	WY3H2PC15 / 25 / 40R4 (INPUT DC) WY3H2PC15 / 25 / 40R40 (INPUT AC)		
OUTPUT	Rated voltage	380 / 440VAC		
	Voltage range	90 ~ 480VAC		
	Non repetitive peak voltage	800 / 1200V		
	Rated load current	15A	25A	40A
	Frequency	50 / 60Hz		
	Peak surge current	125A	260A	300A
	leakage current	30mA		
	Contact voltage drop	1.5V	1.7V	1.8V
	Minimum operating current	1.0A		
INPUT	Maximum input voltage	32VDC	240VAC	
	Input voltage range	4 ~ 32VDC	90 ~ 240VAC	
	Input current	20±2(mA)		
	Minimum operating voltage	4.0VDC	80VAC	
	Turn off voltage	0.9VDC	10VAC	
GENERAL	Dielectric withstand	2000VAC / rms / 1Min		
	Insulation resistance	DC 500V / 100MΩ		
	Response time	8.3±1ms		
	Circuit control	R40, R4 : Zero cross type		
	Operating temperature	−10 ~ +60°C		
	Storage temperature	−20 ~ +80°C		
	Weight	0.3kg		

Block Diagram



Application Circuit





Multi Intelligent SSR i Series (10CH)

Outline

본 Module SSR은 주로 산업용 다중히터를 표준 통신 프로토콜을 사용하여 종합적으로 제어하는 확장형 SSR입니다.

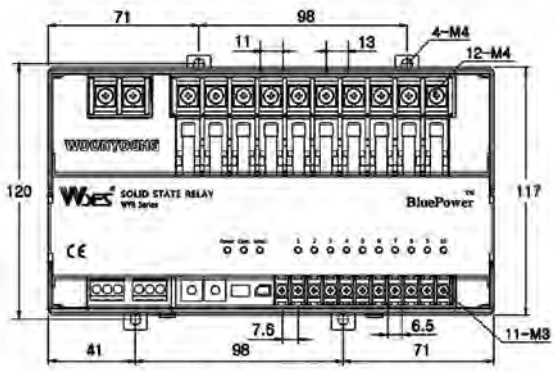
This Module SSR is an extended SSR mainly to control industrial multi-heaters synthetically using a standard communication protocol.

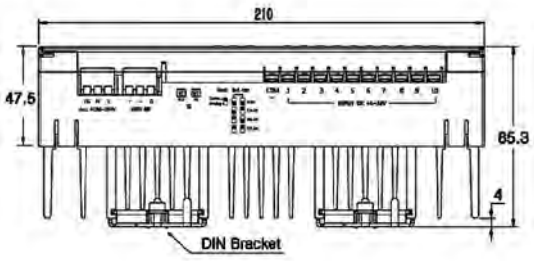
Features

- 485통신으로 최대 10ch x 99대 = 990EA 히터를 동시에 제어 가능합니다.
- Analog 신호 DC4~32V 개별 제어가 가능합니다.
- 방열판에 열감지 센서가 부착되어 있어 방열판 과열시 자동으로 정지 됩니다.
- 외부로부터에 써-지에 대한 보호회로가 내장되어 있어 영향을 받지 않습니다.
- Modbus-485 통신으로 디지털 제어가 가능합니다.

- Can simultaneously control a maximum of 10ch x 99ea = 990EA heaters via 485 communications.
- Can individually control analog signals DC4~32V.
- Has a heat detection sensor on the radiator to automatically stop when the radiator is overheated.
- Has a protective circuit against surges from outside not to be affected.
- Enables digital control with Modbus-485 communications.

Dimension



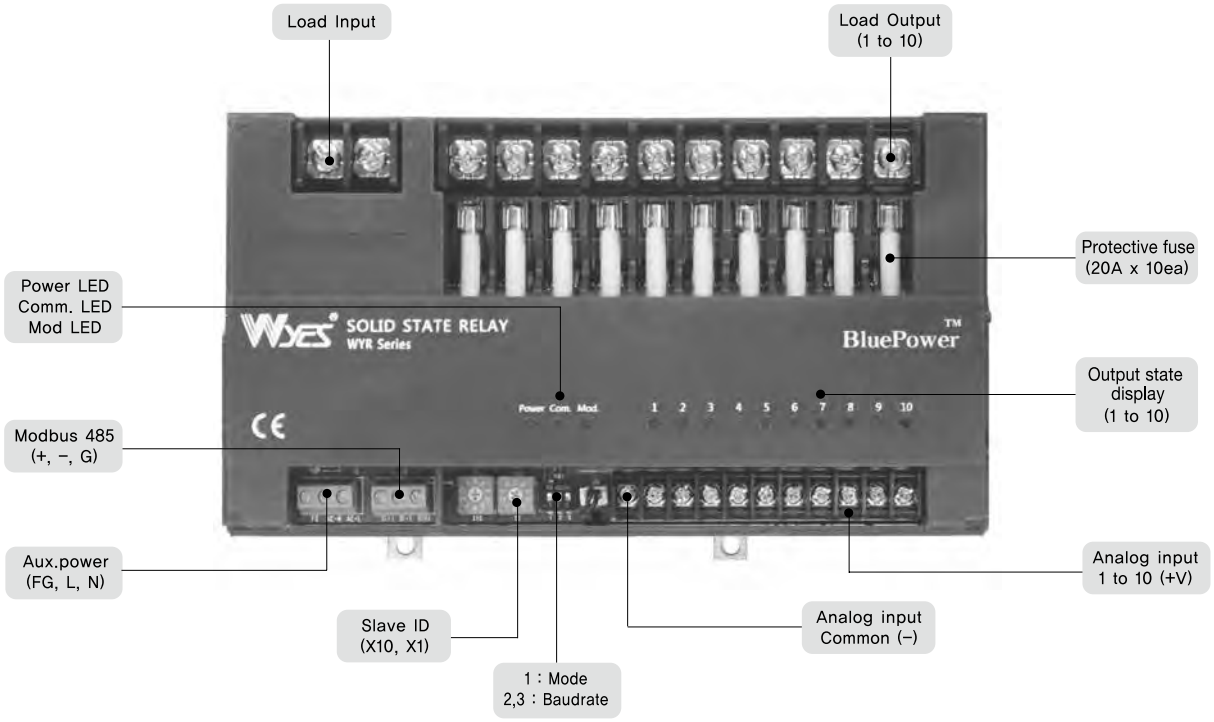


Specifications

ITEM \ MODEL			Module SSR 10ch WYR-1H10C50Z4 (BluePower)
OUTPUT	Channel		10ch
	Circuit control		Zero cross
	Rating voltage		440VAC, 1Ø
	voltage range		90 ~ 480VAC
	Non repetitive peak voltage		1200V
	Rated load current		8A(1ch), MAX 50A(10ch)
	Frequency		50 / 60Hz
	Peak surge current		260A
	Leakage current		@10mA
	Contact voltage drop		1.6VAC MAX
	Minimum operating current		0.5A
	Fuse		AC250V, 20A
INPUT	Modbus 485	Baud-rate	9600 / 19200 / 38400 / 57600
		Slave ID	1 ~ 99
		Distance	MAX 1km
	Analog	Channel	10ch
		Max. input voltage	32VDC
		Input voltage range	4 ~ 32VDC
		Input current	10mA (±3mA)
		Minimum operating voltage	3.7VDC
		Turn off voltage	21VDC
GENERAL	Aux. power		AC90~264V 50 / 60Hz (free voltage) 〈10VA
	Dielectric withstand		AC 2kV for 1 minute : Input-Output-Aux. power AC 2kV for 1 minute : Output-Aux. power-FG AC 500V for 1 minute : Input-FG
	Insulation resistance		DC 500V / 100MΩ
	Impulse voltage withstand		5kV-1.2/50 μs
	Shock Resistance		Approx. 30G 3Times each in 3 Directions
	Vibration Resistance		30Hz 0.4mm Double Amplitude 600s each in X, Y and Directions
	Operating temperature		-10 ~ 55°C
	Storage temperature		-20 ~ 70°C
	IP grade		IP52
	Weight		1.7Kg

Multi Intelligent SSR i Series (10CH)

Front plate



LED 기능설명

LED name	LED on	LED off	BLINKING
Power	Aux. power OK	Aux. power no voltage	–
Com	Data in	no data	Com and Mod : Communication error Com or Mod : Radiator heated
Mod	Modbus 485 control	Analog signal control	
Output 1~10	Corresponding circuit ON	No input/output	Cycle mode on

Switch 기능설명

- Slave ID S/W : ID설정시 1~99번까지 설정 가능하며 x 1(1단위), x 10(10단위)로 설정합니다.
  예) x 10(5), x 1(13)으로 설정된 경우 ID No.는 "53"입니다.
- Mode, Baud-rate S/W : 본제품은 통신 환경에 따라 Speed를 4단계로 설정 할 수 있으며 485통신 제어 또는 Analog DC-V를 아래 표에 따라 선택하여 제어 할 수 있습니다.

- Slave ID S/W : ID can be set up to #1~99, like x 1(1 unit), x 10(10 units).
  Ex) x 10(5), x 1(13) means ID No. "53".
- Mode, Baud-rate S/W : This product can be set in 4 steps of speed depending on the communication environment, and it is possible to select and control the 485 communication control or Analog DC-V according to the following table.

	S/W No			제어방식	Baud-rate
	1	2	3		
①②③ Mode Baud rate	1	0	0	Modbus 485	9600bps
	1	0	1		19200bps
	1	1	0		38400bps
	1	1	1		56700bps
	0	*	*	Analog Signal	*

Intelligent SSR i Series (10CH)

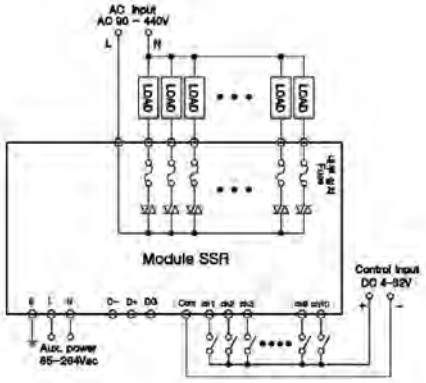
Terminal block

- Modbus-485 : 485 통신전용 단자입니다.
- Aux. Power : 보조 전원 입력 단자로 AC86~264V에 동작합니다.
  "FG"단자는 필히 접지하여야 합니다.
- Analog Input : Analog signal (4~32Vdc)로 제어할 경우 Signal입력 단자이며
  M3 Screw를 사용합니다.
- Load : 부하측 연결단자입니다. Input과 Output으로 분리 되어 있으며
  M4 Screw를 사용합니다.

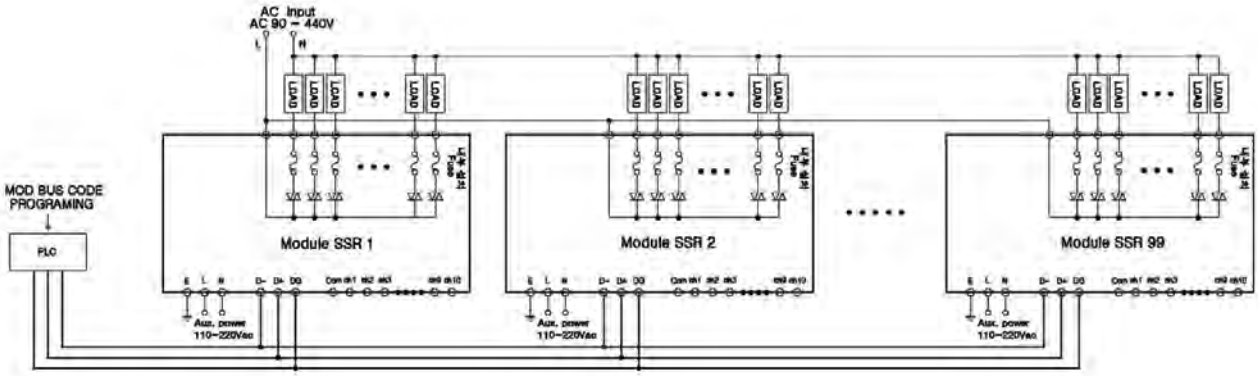
- Modbus-485 : 485 communication terminal
- Aux. Power : Auxiliary power input terminal to work at AC86~264V.
  Ground the "FG" terminal by all means.
- Analog Input : A signal input terminal for control with analog signals(4~32Vdc),
  using a M3 Screw.
- Load : Load side connection terminal. Separated as Input and Output, using a M4 Screw.

Connection Diagram

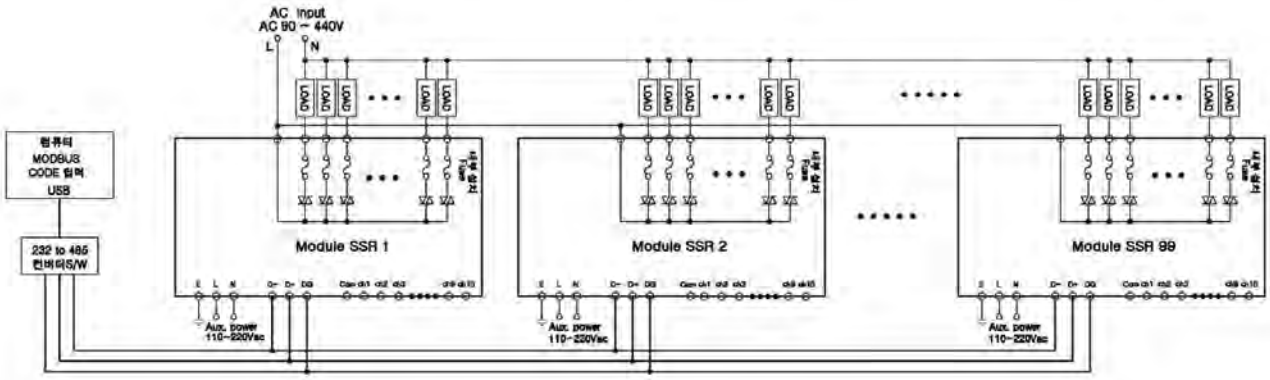
1) Analog signal control (4~32Vdc)



2) PLC control



2) PC control



온도검출용 무접점전자릴레이

Temp. Control Solid State Relay(SSR)

• 온도검출용 1Ø, 3Ø AC220~440V, 10A~80A ····· 272

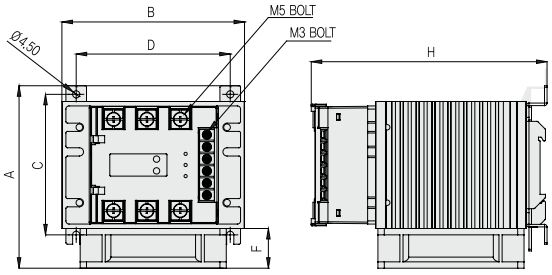
온도검출용 1Ø, 3Ø AC220~440V, 10A~80A

온도검출용 SSR (Temperature Protection SSR)

2극 및 3극을 차단하는 SSR이며, 과부하로인한 과열을 1차 경보(60도), 2차 경보 및 차단(80도)을 제어하는 차단 기능회로가 내장되어있고 DIN-Rail 및 일반 판넬 고정방법 취부가 가능한 S마크 인증이 획득된 제품입니다.

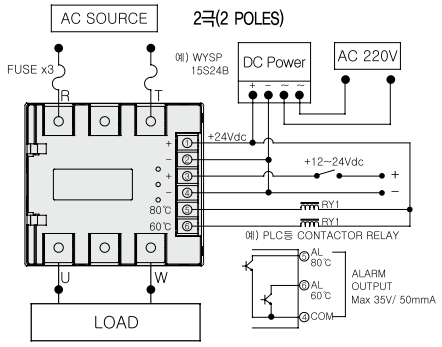
As a SSR to break 2 or 3 poles, this product is internally equipped with a breaking functional circuit to control the 1st alarm(60°C) and the 2nd alarm and breaking(80°C) against overheating due to overloads, and can be mounted on a DIN rail or a general panel, being a S-mark certified product

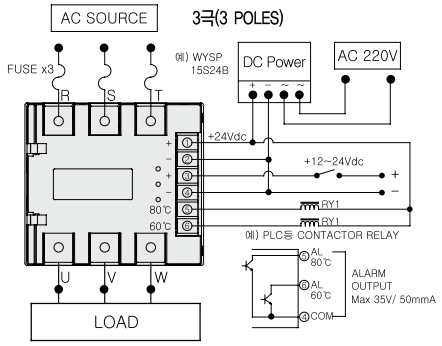
Dimension



PART	A	B	C	D	F	H	FAN	MODEL NO.
a	99.8	115	88.5	97	-	114	x	WYT(G/H)2C10/20Z4 WYT3(G/H)3C10/20Z4
b	99.8	115	88.5	97	-	148.5	x	WYT(G/H)2C30Z4
c	114.9	115	88.5	97	25	148.5	92×92×25mm	WYT(G/H)2C40/50Z4 WYT3(G/H)3C30/40/50Z4
d	135	140	60	130	25	139.5		WYT(G/H)2C60Z4 WYT3(G/H)3C60Z4
e	148	140	60	130	38	139.5	92×92×38mm	WYT(G/H)2C80Z4
f	165	140	90	130	25	139.5	92×92×25mm	WYT3(G/H)3C80Z4

Application Circuit

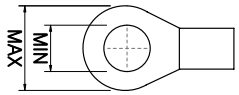




Specifications

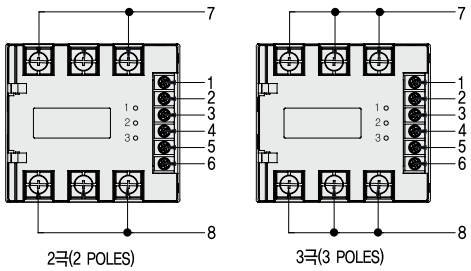
ITEM	MODEL	WYTG2C10/20/30/40/50/60/80Z4 WYT3G3C10/20/30/40/50/60/80Z4				WYTH2C10/20/30/40/50/60/80Z4 WYT3H3C10/20/30/40/50/60/80Z4		
OUTPUT	Rated voltage	220VAC				440VAC		
	Voltage range	90 ~ 240VAC				90 ~ 480VAC		
	Non repetitive peak voltage	600VAC				1200VAC		
	Rated load current	10A	20A	30A	40A	50A	60A	80A
	Frequency	50 / 60Hz						
	Peak surge current	160A	250A	420A	420A	480A	480A	480A
	Leakage current	10mA						
	Contact voltage drop	1.7V	1.8V	1.8V	1.8V	2.0V	2.0V	2.0V
	Minimum operating current	1A						
INPUT	Maximum input voltage	32VDC						
	Input voltage range	12 ~ 24VDC						
	Input current	10 ± 3mA						
	Turn off voltage	6.8VDC						
GENERAL	Aux. power	24VDC						
	Dielectric withstand	Pri−Sec : 2000Vac for 1Minute Pri−Earth : 2000Vac for 1Minute Sec−Earth : 500Vac for 1Minute						
	Insulation resistance	DC 500V 100MΩ						
	Response time	10ms						
	Circuit control	Zero Cross Type						
	Operating temperature	−10 ~ 60°C						
	Storage temperature	−20 ~ 80°C						
	Weight (Heatsink, Fan 제외)	단상 : 0.3Kg, 삼상 : 0.32Kg						

Terminal



Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Name of Part

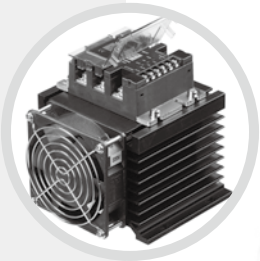


① AUX Power 24Vdc (+)
② AUX Power 24Vdc (−)
③ 제어입력 12 ~ 24Vdc (+)
④ 제어입력 12 ~ 24Vdc (−)
⑤ 경보 출력 단자 (80°C)
⑥ 경보 출력 단자 (60°C)
⑦ 입력단자
⑧ 부하단자

모터전용 무접점전자릴레이

Motor Control Solid State Relay(SSR)

• 모터전용 3Ø AC220~440V, 10A~40A ····· 274



모터전용 3Ø AC220~440V, 10A~40A

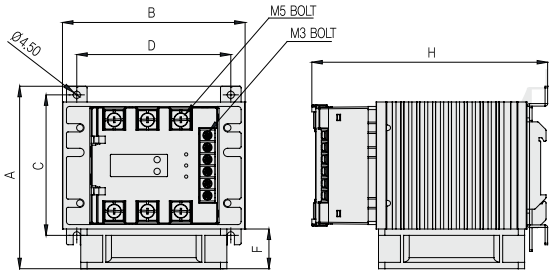
Soft start 내장

모터전용 SSR (SSR for motors)

소프트스타트 지연시간 설정 및 입력 전원 결상 여부와 역상 검출이 가능하며 설비 용량을 최소화하여 판넬 면수를 최소화하고 유지 및 보수비용 절감된 저 전류 기동과 기동시 전압 강하를 방지하고 DIN-Rail 및 일반 판넬고정방법 취부가 가능합니다.

This product can set a delay time for a soft start, detect the input power wiring and reverse phasing, minimize the number of panel faces by minimizing the capacity of equipment, prevent voltage drops during a start by being started at a low current at a low maintenance and repair cost, and be mounted on a DIN rail or a general panel.

Dimension

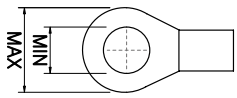


PART	A	B	C	D	F	H	Fan	MODEL NO.
a	100	115	88.5	97	-	114	X	WYM2-2.2/5.5 WYM4-5.5/11
b	115	115	88.5	97	25	148.5	92×92×25mm	WYM2-7.5/11 WYM4-15/22

Specifications

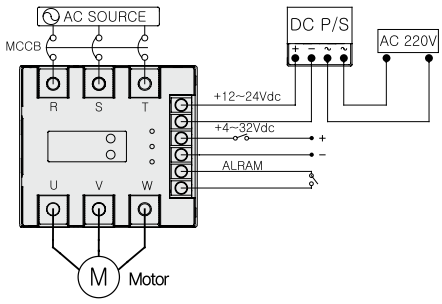
ITEM	MODEL	WYM2-2.2/3.7/5.5/7.5/11		WYM4-5.5/11/15/22	
OUTPUT	Rated voltage	220VAC		380 / 440VAC	
	Voltage range	180 ~ 240VAC		360 ~ 480VAC	
	Non repetitive peak voltage	600VAC		1200VAC	
	Rated load current	10A	20A	30A	40A
	Frequency	50 / 60Hz			
	Peak surge current	420A	420A	480A	480A
	Leakage current	〈 10mA			
	Contact voltage drop	1.8V	1.8V	2.0V	2.0V
INPUT	Input voltage range	4 ~ 32VDC			
	Input current	〈 45mA			
	Torque setting	0 ~ 90%			
	Soft start time setting	0 ~ 10s			
GENERAL	Aux. power	12 ~ 24VDC			
	Dielectric withstand	Pri−Sec : 2000Vac for 1Minute Pri−Earth : 2000Vac for 1Minute Sec−Earth : 500Vac for 1Minute			
	Insulation resistance	DC 500V 100MΩ			
	Response time	30ms			
	Alram contect	AC 125V 0.5A, DC 30V 2A			
	Circuit control	Phase Control Type			
	Operating temperature	−10 ~ 60°C			
	Storage temperature	−20 ~ 80°C			
	Number of this standard	IEC 62314			
	Rated impulse withstand voltage	2.5kV		4kV	
	Pollution degree	2			
	IP code	IP 10			
	Load category	LC B			
	Weight (Heatsink, Fan 제외)	1kg		1.5kg	

Terminal

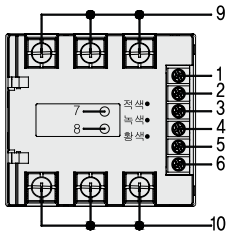


Input Ter : Max 7, Min 3.5
Output Ter : Max 12, Min 5

Application Circuit



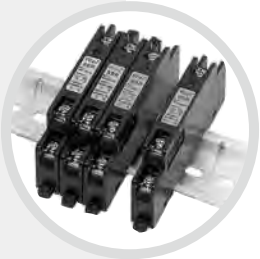
Name of Part



① AUX Power 12 ~ 24Vdc (+)
② AUX Power 12 ~ 24Vdc (−)
③ 제어 입력 4 ~ 32Vdc (+)
④ 제어 입력 4 ~ 32Vdc (−)
⑤ 경보 출력 단자 (Tc)
⑥ 경보 출력 단자 (Ta)
⑦ 소프트 스타트 시간 설정
⑧ 토크 값 설정
⑨ AC SOURCE
⑩ MOTOR

DC 무접점전자릴레이

DC Solid State Relay(SSR)

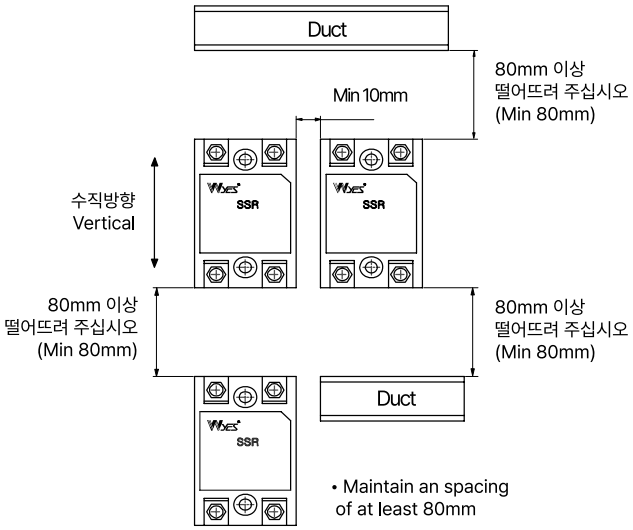


- WYPM DC 3A (DC/DC Type) ····· 276
- WYGA DC 0.5~1.5A (DC/DC Type) ····· 275
- WYGB DC 1.5~2.0A (DC/DC Type) ····· 279
- WYPS DC 3A (DC/DC Type) ····· 280
- WYSC DC 1~10A (DC/DC Type) ····· 281
- WYR DC 0.5A~10A (DC/DC Type) ····· 282
- WYMY DC 200V 1~3A (DC/DC Type) ····· 283
- WYLY DC 200V 1~3A (DC/DC Type) ····· 284
- WYNSG Standard DC 200V 5~40A (DC/DC Type) ····· 285
- WYNSH DC 500V 5~20A (DC/DC Type) ····· 286
- WYMS DC 50V 5~40A (DC/DC Type) ····· 287
- WYMS DC 100V 5~40A (DC/DC Type) ····· 288
- WYMS DC 200V 5~20A (DC/DC Type) ····· 289
- WYMS DC 500V 5~20A (DC/DC Type) ····· 290
- WYFMH DC 100V, 50~150A (DC/DC Type) ····· 291

3. SSR 설치 및 주의사항 Installing SSR and Cautions

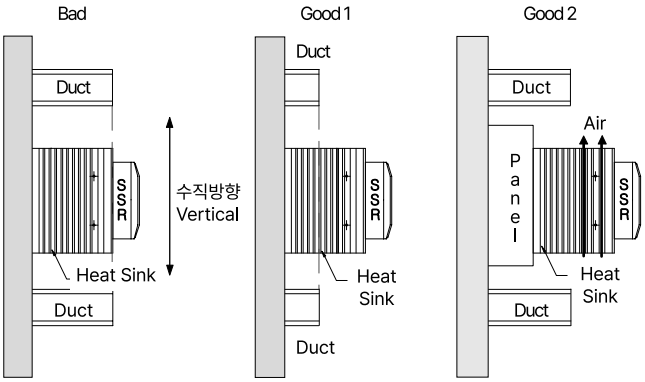
● SSR 설치 간격 (판넬 설치조건)

• SSR installing spacing (Panel installing conditions)



● SSR과 덕트의 관계 (덕트 높이)

Relation between SSR and duct (Duct height)



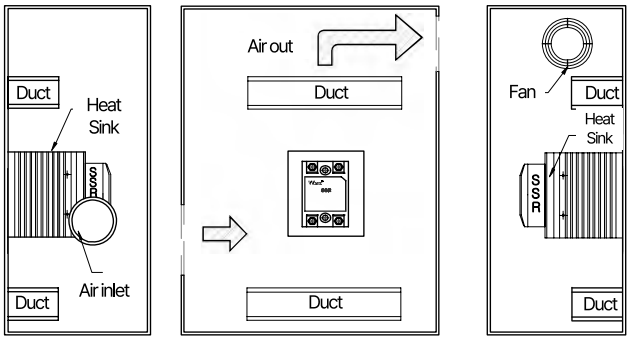
상하를 덕트로 가려버리면 방열이 나빠집니다.
Heat radiation becomes unsatisfactory if the top and bottom are covered with duct.

낮은 덕트를 사용하여 주십시오.
Install ducts low.

덕트를 낮게 할수 없는 경우 받침대(금속제)를 사용하여 SSR을 높여 주십시오.
If the duct cannot installed low, install a support (metal) to avoid ducts from covering SSR.

● 제어반 밖으로의 환기 방법

• How to air out the control panel



※ 흡기구 또는 배기구에 필터가 부착되어 있는 경우, 막힘으로 인한 효율저하를 방지하기 위해 정기적으로 청소해 주십시오.
※ 흡기구나 배기구 안과 밖 주변에는 흡기나 배기에 장해가 되는것을 두지마십시오.
※ 열 교환기(AIRCON) 사용시에는 SSR 전면의 위치에 설치하는 것이 효과적입니다.

※ If filters are installed on the air inlet or exhaust port, clean them periodically to prevent deterioration of efficiency resulting from clogged filters.
※ Do not place any articles in and outside the area to prevent interference with the air inlet or exhaust port.
※ For more effects, install heat exchanger (Air-conditioner) in front of SSR.

● SSR의 주위온도를 낮춰 주십시오.
정격 전류는 SSR의 주위온도 40°C에서의 값입니다.
● SSR은 반도체 소자로 부하를 개폐하므로 통전에 따라 발열하여 판넬내 온도도 상승합니다. 이 발열을 제어반에 팬을 부가해 환기하는 것으로, SSR의 주위온도를 내리면 신뢰성이 향상됩니다.
(온도를 10°C 낮추면 기대 내구성이 2배가 됨.)

● Lower the ambient temperature of SSR
The rated current is the value calculated at SSR's ambient temperature of 40°C.
● Since SSR opens or closes load with the semiconductor device, it is heated when power is connected and the temperature inside the panel also rises. This heat is ventilated by adding fans to the control panel. Reliability is improved if SSR's ambient temperature is reduced.
(If temperature is reduced by 10°C, the expected life is doubled.)

3. SSR 설치 및 주의사항 Installing SSR and Cautions

● 팬(FAN) 설치 기준

3 Phase

SSR Rating(A)	10A	20A	30A	40A
SSR Fan/EA	0.70 EA	1.17 EA	1.63 EA	2.09 EA

1 Phase

SSR Rating(A)	10A	20A	30A	40A
SSR Fan/EA	0.47 EA	0.78 EA	1.09 EA	1.40 EA

예 : 30A (3상)의 SSR이 10대인 경우에는 1.63 × 10 = 16.3이므로 팬이 17대 필요합니다.

※ 팬 크기 : 92mm x 92mm, 풍량 : 0.7m³/min,
판넬의 주위온도 : 30°C에서 산출

※ 동일 판넬내의 다른 기종의 발열에 대해서는 별도 환기가 필요합니다.

● 방열기와 실리콘구리스

- SSR을 방열기에 설치한 경우 방열용 실리콘구리스 (도시바 실리콘 YG6111, 신에쓰 실리콘 G746등)을 설치면에 반드시 도포해 주십시오.
- SSR을 방열판에 설치할 때는 이상 발열의 원인이 되지 않도록 규정 토크로 조여 주십시오.
  조임토크 : 2.0N.m

● 사용조건에 대해서

- 정격 전류 이상의 전류는 흐르지 않게 해 주십시오.
  이상 발열의 원인이 됩니다.
- 자기 발열에 의한 주위 온도 상승에 주의해 주십시오.
  특히 판넬내에 설치할 경우에는 바깥 공기와의 환기가 충분히 이루어질 수 있도록 좌측 그림과 같이 팬을 설치하여 주십시오

● 각종 나사의 조임에 대해서

- SSR의 각종 나사는 오동작 등의 원인이 되지 않도록 규정 토크로 단단히 조여 주십시오.
- 출력 단자의 나사가 느슨한 상태에서 사용하지 마십시오.
  단자부 및 내부의 이상 발열로 인해 발화의 원인이 됩니다.

Terminal	BOLT	Recommended Torque
Input	M3.5	0.59 ~ 1.18N.m
Output	M4	0.98 ~ 1.47N.m
	M5	1.47 ~ 2.45N.m
	M6	4.41 ~ 4.90N.m
	M8	8.82 ~ 9.80N.m

⚠ 안전상의 주의

SSR은 반도체 소자를 사용하는 전류제어장치입니다.
반도체소자에서는 전류가 흐르면 열이 발생하는데 이 열은
열[W]=1.6[V]×부하전류[A]로 나타납니다 (3상은×3).
따라서 SSR을 사용하시는 고객께서는 통전중에 발생하는 이 열을 효과적으로 냉각하는 수단을 반드시 갖추어서 반도체 소자가 안전하게 동작할 수 있는 온도를 유지해야 하며 안전을 위하여 특히 다음의 주의사항을 준수해 주십시오.

1. SSR의 각 단자부에 정격이상의 전압, 전류를 인가하지 마십시오.
2. SSR의 고장으로 인한 인체사고, 화재사고, 사회적인 손해등이 발생하지 않도록 안전을 고려한 전기적, 기계적, 물리적으로 여유있는 설계를 하십시오.
3. 만약의 사고에 대비하여 연소대책설계와 오동작 방지설계 등 안전 설계에 유의해 주십시오.
4. SSR에 순간적인 단락전류가 흐르지 않도록 하십시오.
   소자가 쇼트, 파손되거나 제품이 파열됩니다.
5. SSR과 전원사이에 필히 정격전류의 반도체휴즈를 설치해 주십시오.
6. SSR 본체, 방열기 주위의 공기 대류를 방해하지 마십시오.
   이상발열의 원인이 됩니다.
7. SSR 주변에 열동형 계전기 등의 발열체를 절대로 두지 마십시오.
   SSR의 급격한 수명단축 및 화재사고의 원인이 됩니다.

● Standard for installing fans

Example :
Since the formula is 1.63 x 10 = 16.3 when there are 10 units of 30A (3-phase) SSR, 17 units of fan are needed.
※ Fan size : 92mm x 92mm, Airflow : 0.7m³/min,
Panel's ambient temperature : Calculated at 30°C
※ If there are other types of heated equipment inside the same panel, separate ventilation is required.

● Heat sink and thermal grease

- When SSR is installed on the heat sink, apply heat-dissipating silicon grease (Toshiba silicon YG6111 or Shin Etsu silicon G746) to the installing surface.
- To prevent abnormal heating, tighten bolts to prescribed torque when installing SSR on the heat sink. Tightening torque : 2.0N.m

● About the conditions of use

- Do not allow flow of current in excess of the rate level as it causes abnormal heating.
- Take caution about the rise in ambient temperature resulting from self-heating. If the product is installed inside the panel, install fans as shown in the figure on the left side to allow sufficient ventilation with the outside air.

● About tightening bolts

- Tighten SSR bolts up to prescribed torque to prevent Errors.
- Do not use the product with the bolts on the output terminal loose. It may lead to fires caused by abnormal heating of the terminals and internal heating.

⚠ Safety caution

The semiconductor device is heated when current flows, and this heat is indicated as Heat [W]=1.6[V]×Load current[A] (3-phase x 3). SSR users therefore must install a means that effectively cools this heat produced while power is connected and maintain a temperature at which the semiconductor device can safely be operated. Observe the following to ensure safety:

1. Do not apply voltage or current exceeding the rate levels to the terminals of SSR.
2. Apply electrically, mechanically and physically satisfactory design considering safety to prevent human accidents, fires or social damage resulting from SSR failure.
3. To prepare against contingencies, pay particular attention to safety design, e.g. anti-burning design and anti-error design.
4. Do not allow instantaneous short circuit current to flow to SSR as it may induce the device to be short-circuited or damaged, or product may be ruptured.
5. Be sure to install quick-acting fuses of rated current between SSR and power supply.
6. Do not interfere with the air convection in the vicinity of SSR and the heat sink as it may lead to abnormal heating.
7. Never place heating elements, e.g. thermal relays in the vicinity of SSR as it may reduce life at a fast speed and/or induce fires.

4. SSR의 개요 Over view of SSR

4 - 1. 특징

(1) 완전 Solid State

코일형 RELAY와 같이 전자력에 의한 기계적인 동작으로 접점이 동작하는 방식이 아닌 전자 소자에 의한 접점 동작으로 일반 RELAY와 같은 ARC, Chattering , Bounce가 없고, 고 신뢰도와 장수명을 가지고 있으며, 내부적으로 수지몰딩 되어 동작음이 전혀 없으며 최근에는 부분조립형도 제작되어 필요시 주요부품의 교환이 가능합니다.

(1) Complete solid state relay

Contact point is operated by electronics rather than mechanical motions by electronic power from relay of coil and ARC, chattering and bounce occurred in general relay do not exist. On top of that, it obtains high reliability and long duration and does not create the noise from motion because of resin molding on its exterior. It has been recently able to be manufactured by assembly so that major parts are able to be exchanged when necessary.

(2) Photo Isolation

SSR의 입력과 출력의 전기적 절연을 위하여 회로에 광결합소자(Photo Coupler)를 사용하여 입출력간 절연이 완벽할 뿐 아니라 부하측 Noise가 입력측에 전달되지 않는 우수한 특성이 있습니다.

(2) Photo isolation

Noise on the load is not transmitted to the input part out of insulation between input and output by use of photo coupler at the circuit for electric insulation of input and output in relaying.

(3) 소신호 동작

일반 Relay 보다 입력신호가 소전류, 소전압으로 동작 하므로 TTL IC 및 기타 Linear IC 등의 소신호로 직접 구동할 수 있습니다.

(3) Motions with small signal

Since input signal is operated by small current and small voltage because of photo coupler in comparison with general relay, it can be directly operation by small signal such as TTL-IC and other Linear IC etc.

(4) Zero Cross, Random Cross Switching

Zero Cross형 SSR은 교류 전원의 Zero 전압 부근에서 주소자의 동작 Trigger 가 이루어 지기 때문에 Cycle 도중에 입력 신호가 발생 하여도 Zero 전압 부근에 이르러서 동작합니다. 종래의 Switching Noise, 과도 전류 및 돌입 전류가 극력 억제되기 때문에 IC, MICOM 및 기타 전자기기에 악영향을 끼치지 않으며, Ramdom Cross형은 신호를 받는 즉시 고속으로 동작하는 회로입니다.

(4) Zero cross, random cross, switching

Since motion trigger of major electronics occurs around zero voltage of alternating current, it starts at about zero voltage though input signal occurs during cycle. It does not place a fatal impact on IC, MICOM and other electronic device because existing switching noise, excessive current and thrust current are extremely restricted. Circuit of random cross type operates at high speed immediately up on receipt of signal.

(5) 정전류 입력 회로

전압에 관계없이 일정한 전류가 흐르는 정전류 제어회로가 입력측에 내장되어 있습니다.

(5) Constant current circuit input

Constant current regardless of voltage is contained at the input.

(6) 소형, 취급이 간편

소형으로서 큰 전력의 개폐 능력을 가지고 있으며 형상은 Print 기판 부착형, 소켓형, 방열판 부착형 등이 있습니다.

(6) Small sized product and easy to handle

Huge electric force opens and shuts with small sized scale. With regard to the figure, there are types to which print plate is affixed and that of plateand socket type.

(7) 높은 내환경성

불연성 수지를 사용하여 밀봉하였기 때문에 내습성이며 위험물이 있는 곳의 방폭형으로 사용가능 하므로 내환경성이 높습니다.

(7) High performance under the environment

It is a humidity free since it is tightly sealed by use of incombustible resin as well as explosion free at the place of dangerous goods so that it performs highly under the surroundings.

(8) Metal Bonding 방식

SSR 제품은 주 소자와 방열판의 결합에 열전도 특성이 가장 우수한 금속접합(Metal Bonding Process)공법을 적용함으로서 소자에서 발생하는 열을 근본적으로 제거하여 제품의 신뢰성이 타사 제품에 비하여 30%이상 높습니다.

(8) Metal Bonding Method

SSR Products are applied the highest quality metal bonding process about combining a main device and a heat sink. It remases heat of a device so reliability of our products to other companies is hegher than the 30%.

4. SSR의 개요 Over view of SSR

4 - 2. 구분 (Category)

INPUT	OUTPUT	OUTPUT KIND	TRIGGER CIRCUIT	SOURCE (POWER LINE)	CONTACT(A)	SHAPE
· DC Input · AC Input	· AC Contact	· 1Ø · 3Ø	· Zero Cross Trigger · Random Trigger	· 90-240VAC · 90-480VAC	· 1A-3A · 10A-150A	· PCB Insert Type · Heat Sink Type
· DC Input	· DC Contact	· DC Line	· On/Off Trigger	· 200-1200VDC	· 1A-3A	· PCB Insert Type
					· 5A-400A	· Heat Sink Type
· DC Input	· AC/DC Free Contact	· AC/DC Free Line	· On/Off Trigger	· 5~240VAC/DC	· 0.6A · 1.2A	· PCB Insert Type · Socket Type
· DC Input · AC Input	· AC Contact 2 Circuit · DC Contact 2 Circuit	· AC Line · DC Line	· Zero Cross Trigger · Random Trigger · On/Off Trigger	· 50~240VAC · 5~240VDC	· 1A	· PCB Insert Type · Socket Type

4 - 3. 구조적 특징 (Structural Feature)

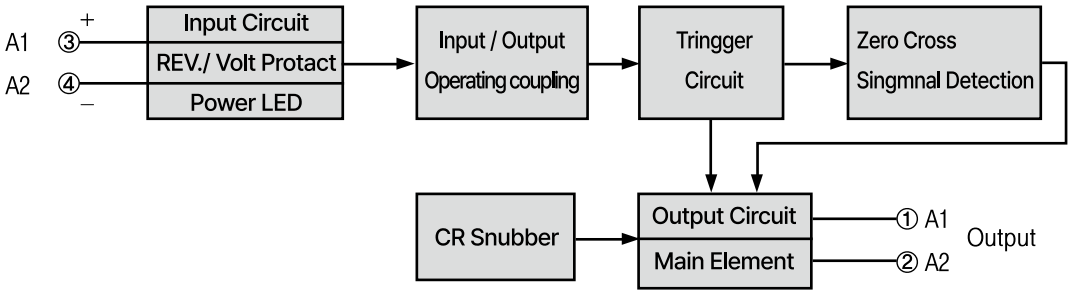
구조분류			특징
Isolate 부품	Photo Transistor 형		· 입력신호전압범위가넓다. · 입력신호전류가작다.
	Photo Transistor 형(SCR. TRIAC)		· 입력신호범위가작다. · 회로구성부품이적어신뢰성에서유리하다.
	Photo Voltaic Diode 형		· 자체발전구조 · MOS FET Drive
Trigger 회로	Zero Cross 형		· On Switching Noise가적다. · On시돌입전류가억제가된다.
	Random Cross 형		· 고속동작이가능하다. 위상제어사용
CR Snubber	내장형		· 정격내의정상동작이보증된다. · 누설전류가많다.
	외부형		· 부하에따라선택사용한다. · 부하조건에의해CR상수를임의로정한다.
사용전원	교류형		· 품종이풍부하고기능이다양하다. · 응답속도가빠르며교류전력제어에적합하다.
	직류형		· 직류전원에사용가능.
구조	Print 기판 정착형	DIP 형	· 높이가낮다.
		Single In Line 형	· 박형으로다수조립에유리
	방열기, 샤시 장착형		· 전류용량이크다.

STRUCTURE FEATURE			CHARACTER
Isolate Part	Photo Transistor Type		· Larger range of trigger signal. · Low current of input signal.
	Photo Transistor Type (SCR. TRIAC)		· Small range of trigger signal. · Confidence profitable.
	Photo Voltaic Diode Type		· MOS FET Drive
Trigger Circuit	Zero Cross Type		· Low noise of on switching noise. · Inrush current restraint to on time.
	Random Cross Type		· High speed switching possible. · Can use phase control.
CR Snubber	Inner Case Type		· Leakage current many happened.
	Out Case Type		· Can useful choice of load. · Option constant"Condenser and resisior"determine.
Source	AC Type		· Application is various · AC type and respond time quickly.
	DC TYPE		· Can use DC source. · Respond time is very quickly.
Structure	Useful by PCB	DIP TYPE	· Height is low.
		Single In Line TYPE	· Can use PCB profitable PCB Art-working.
	Heat Sink Type		· Load current is heavy. · Can use heat sink.

4. SSR의 개요 Over view of SSR

4 - 4. 회로기능 및 기본동작 (Function of circuit and basic motions)

(1) 회로의 구성 (The structure of circuit)



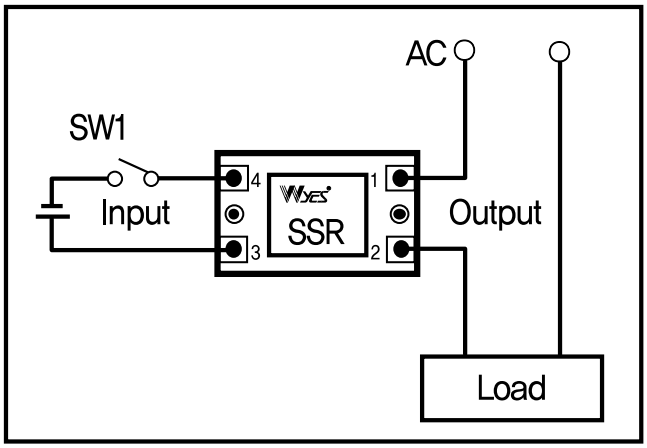
(Fig1) SSR Basic Block Diagram

(2) 회로기능

- 입 력 회 로 : 입력전류 제한 및 입력 동작 표시를 합니다.
- 광결합 회로 : 입력출력간 광결합 소자를 통하여 절연 및 신호를 전달 합니다.
- TRIGGER 회로 : 입력 신호를 받아 주소자를 ON - OFF TRIGGER 합니다.
- 신호검출회로 : ZERO CROSS 및 RANDOM ON - OFF 신호를 AC전원에서 검출 합니다.
- 출 력 회 로 : 주접점 소자가 TRIGGER 신호를 받아 전원을 ON - OFF 합니다.
- CR SNUBBER : TRIGGER 회로, 주소자를 정상적으로 동작 하도록 과도 전압을 흡수 합니다.

(2) The function of the circuit

- Operating coupling : it indicates restriction of input current and input motions.
- Photo circuit : it delivers insulation and current through photo coupler between input and output.
- Trigger circuit : on-off trigger major electronics after receipt of input signal.
- Circuit of signal detection : detect zero cross and random on-off signal at the AC supply.
- Output circuit : electronics of Main Element receives trigger signal and on-off the electric source.
- CR Snubber : it absorbs an excessive electric source so that trigger circuit and Main Element operate normally.



(Fig2) Typical Application of SSR

4. SSR의 개요 Over view of SSR

(3) 기 본 동 작

- (그림 2)와 같이 출력단자 ①,②에 부하와 교류전원을 폐회로로 접속합니다.
- 입력단자 ③,④에 직류 입력신호가 없는 경우는 주소자가 OFF 상태로서 부하에는 전류가 흐르지 않습니다.
- 입력신호가 인가 되면 LED가 발광하고 PHOTO 광결합회로가 동작 하여 ZERO CROSS TRIGGER 회로에 의해 전원의 ZERO 부근에서 주소자가 ON 되고 부하에 전류가 흐릅니다.
- 입력신호가 OFF 되면 부하전류가 주소자의 유지전류 이하로 될 때 주소자는 OFF되어 기본 RELAY 동작이 이루워 집니다.

(3) Basic motions

- Connect load and alternating power source at output terminal 1 and 2 by closing circuit as manifested in Picture 2.
- When there is no direct current in input terminal 3 and 4, main element is off and current does not operate.
- When input signal is apply, main element is on at about zero and current operates at the load as LED turn on and optical coupling circuit operates by zero cross trigger circuit.
- When input signal is off, main element off as load current is below sustaining current of main element and motion of basic relay operation.

(4) 부하의 종류에 의한 기본동작 파형

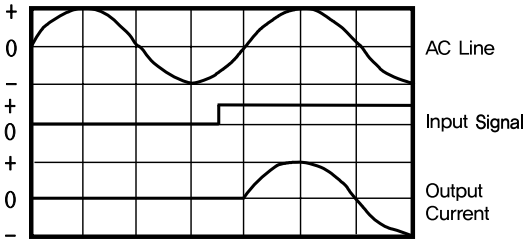
- SSR 의 동작은 주소자의 단자전압(SSR의 출력단자간 전압)에 의해 이루어 집니다.
- 이 단자 전압은 부하의 종류, 또는 부하의 동작 조건에 의해 변하며 크게 나누어 저항부하, 유도성부하, 용량성 부하 등 3종류의 부하가 있고 부하에 따라 아래와 같이 동작 파형이 나타냅니다.

(4) Waveform of basic motions according to the type of load

- SSR motions is implemented by terminal voltage of main element (voltage between output terminals of SSR).
- This terminal voltage varies according to the type of load, and condition of motions of load. There are three types of load such as resistance load, inductive load and capacitive load etc. largely speaking and wave type of motions according to load are as following.

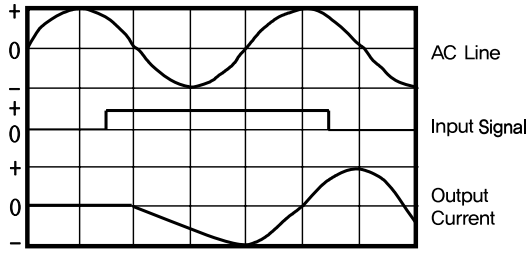
4 - 5. 부하상태에 따른 기본파형
Basic waveform according to the status of load

1) Zero Cross Type



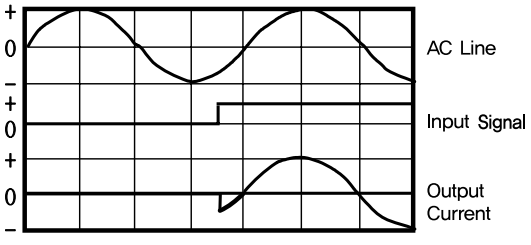
(Registive Load)

2) Zero Cross Type



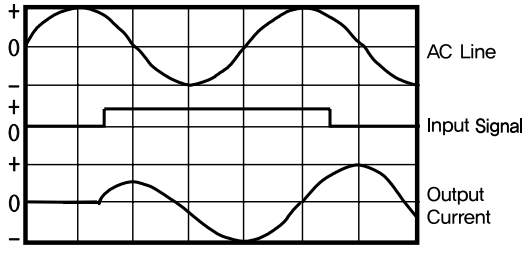
(Inductive Load)

3) Random Cross Type



(Registive Load)

4) Random Cross Type



(Inductive Load)

4 - 6. 응용분야 (Application)

SSR은 내 환경성이 높아 일반 RELAY 같이 광범위 하고 새로운 분야에 응용 되고 있습니다.

SSR is being applied to the extensive and various areas such as general relay because of high performance under the environment.

(1) SSR 의 응용 제품 및 용도

응용분야 APPLICATION FIELD	응용제품 APPLICATION PRODUCTION		주용도(부하) MAIN APPLICATION (LOAD)						
			SOLE-NOID	MOTOR	HEATER	INCANDESCENT LAMP	NOCTILU-CENCE	INTER-FACE	POWER
교통제어기분야 Traffic Controller	· 교통신호기	· Traffic Signal				○			
	· 철도신호기	· Railroad Signal				○			
	· 전광표시판	· Electric Light				○			
	· 역무장치	· Station Equipment	○	○		○	○		○
계장제어기분야 Controller	· 시퀀스 Controller	· Sequence Controller				○		○	
	· Press Controller	· Press Controller							○
	· NC Controller	· NC Controller	○	○					○
	· 전압조정기	· Voltage Regulator							
	· 전기로	· Electric Furnace		○	○				
	· 항온조	· Temperature Machine		○	○				
공작기분야 Machine Tools	· NC Mcahine	· NC Mcahine	○	○					○
	· Program ON/OFF CONT.	· Program ON/OFF CONT.	○	○	○				○
	· 일반공작기	· General Machine Tools	○	○					
사무기분야 Office Works	· 복사기	· Copying	○	○	○				○
	· Facsimile	· Facsimile		○	○				
	· Computrexxx	· Computre	○	○				○	
	· 기록계	· Electronic Register	○	○					○
가정용전기 제품분야 Household Electric Product	· Air Conditioner	· Air Conditioner		○					
	· 냉장고	· Refrigerator		○	○				
	· 전공공구	· Electric Motive TOOLS		○					
	· 전기재봉틀	· Electric Sewing Machine		○					
기타 ETC.	· 수지성형기	· Resin Shape Tools	○	○	○				
	· 수위검출장치	· Water Level Dection Tools	○	○					
	· 비상용전원	· Emergencesource	○	○		○			
	· Elevator	· Elevator	○	○					
	· Auto.Door	· Auto.Door	○	○					
	· 현상기	· Phenomenon Machine	○	○	○	○			
	· 의료기	· Medical Appliances	○	○			○		

4. SSR의 개요 Over view of SSR

4 - 7. SSR (Solid State Relay)과 MC (Magnetic Contactor) 비교
Comparison between SSR(Solid State Relay) and MC(Magnetic Contractor)

다음은 SSR과 MC의 비교표로 각 특성 항목별로 서로의 장단점을 가지고 있으므로 설계하고자 하는 회로 특성에 맞추어 선택 하여야만 장치의 특성과 경제성이 있습니다. 또한 SSR는 입력 동작 특성이 우수하고 내환경성이 높으며 동작 속도가 빠른 반면 발열이 있으며 전기적 특성의 한계가 있습니다.

Following is the table to compare SSR and MC according to the characteristics of each item in terms of strengths and weaknesses. Characteristics and economical side of installment can be obtained only by selecting them in accordance with the characteristics of circuit to be designed. SSR manifests excellent input motions , high performance under the surroundings and high speed of motions while generates the heat and restrictive features of electricity.

(1) SSR대 MC의 비교 (Comparison between SSR and MC)

CATEGORY	ITEM	SSR	MC
입력특성 Input rating	동작전력 Operating power	수mW 이하 Below Few mW	수100mW - 수W Few 100mW-W
	동작전압 범위 Range of oprating voltage	Free voltage 가능 Free voltage is available.	정격전압±약10%의범위 Rated voltage±about10%
	NOISE, SURGE의 발생 Noise, surge generation	전혀없음 Not at all	Coil Off 시 발생 Occurs in coil off
출력특성 Output rating	접점 극수 Contact	1a가 일반적이나 다접점 가능 1a is common but multi contact point is available.	다극 가능 Multi contact is available.
	전원전압 범위 Range of power voltage	주 개폐 반도체 소자의PEAK 전압 특성에 의함 It depends on voltage feature of main element at peak.	광범위 Wide range.
	부하 전류 Load current	주 개폐 반도체 소자의 정격에 의하나 과전류는 정격의 몇배 It depends on rating of main element but many times in case of excessive current.	광범위 하나 과전류에는 접점손상이 크다. Wide range but damage of point of contact is huge in case of excessive current.
	과도 현상 Transient status	고전압, 과도전압에서 파괴 오동작을 일으킬 수 있음 Breakage and error might occur in case of high voltage and power.	문제 없으나 고전압에서는 선택 고려하여야 함. No problem but it must be selective in case of high voltage
	접촉 신뢰성 Reliability of contact	접촉불량없음 No error of contact	접촉불량 발생 Error of contact occurs.
	Bounce, Chattering	없음 None	있음 Yes
	누설전류 Leakage current	100mA 이하 Below 100mA	전혀없음 Not at all
	Noise, Surge 발생 Noise, surge generation	전혀없음 Not at all	유도부하에서 투입시에 발생 Occurs in case of inductive load
	ARC의 발생 Occurrence of ARC	발생없음 N/A	부하에 따라 ARC 발생 Occurs depending load
	접점열발생(열손실) Occurrence of heat at contact	1A당1.5W 정도 접합열 발생 Occurs 1.5W per 1A genrate heat dissipation	접점불량에 따라 열발생 Occurs in case of false contact point
	Zero Cross 기능 Function of zero cross	가능 Available	불가능 Not available
	절연, 내전압 Insulation, voltage resistance	내전압 2,500V 정도 About 2,500V withstanding voltage	고내전압 가능 High withstanding voltage is available.
	동작 속도 Speed of opration	10mS 이내 Within 10mS	100mS 이상 More than 100mS
	수명 Life time	장수명(점점동작과무관) Long(regardless of motions of contact point)	수십만회 정도 A few 100,000 times
환경특성 Features of environment	내진동,충격,부식 Resistance of vibration,shock, corrosion	문제없음 No problem	오동작으로 파괴있음 Possible because of error
	화학,GAS위험 Chemical, gas danger	문제없음 No problem	접촉 ARC로 폭발 위험있음 Danger of explosion By contacting ARC.
	온도 Temperature	온도에 대응한 방열을 고려할 필요가 있음 Need to consider generation of heat against temperature.	재료의 내열성, 동작특성의 변화를 고려할 필요가 있음 Heat proof of materials and change of motions needs to be checked.
	습도 Humidity	문제없음(수지밀봉) No problem(resin seal)	절연특성이 저하 Lowering insulation
	동작음 Sound of motions	없음 None	Magnet의 동작음이 있음 Noise of motions of magnet

5. SSR 방열설계와 방열기 선정법 SSR thermal design and heat sink selection

5 - 1. 방열기의 특성

방열기는 장치 내 환경조건과 설계조건에 따라 많은 변수를 포함하고 있으므로, 아래 제시한 방열기의 특성을 먼저 참고하여 설계하기 바라며 SSR 등 전력소자는 방열이 매우 중요한 과제이므로 신중히 설계하여야 합니다. 만약 방열기 사용을 기피하면 처음에는 양호한 동작을 하나 얼마 후 SSR 내부 발열로 인한 접점의 파괴를 가져 옵니다.

(1) 방열기의 방열량은 방열판(날개)의 표면적에 비례합니다.
(2) 방열기의 방열량은 방열판의 표면온도와 주위의 공기온도 와의 차에 비례합니다.
(3) 방열기의 표면은 흑색이 방열(放熱)효과가 높습니다.
(4) 방열판이 수직 방향이 되도록 취부 하여 사용하지 않으면 Catalog의 Data와 같은 성능을 기대할 수 없습니다.
(5) 반도체와 방열판 사이는 밀착성이 좋지 않을 경우, 방열 (放熱)효과는 크게 떨어집니다.
(6) 방열기를 취부 한 장소에 충분한 공기의 자연대류가 이루 어지도록 하지 않으면 방열기의 성능이 저하됩니다.
(7) 방열팬(Fan)으로 강제 공냉 시키면 방열기의 능력은 약 2 배 이상 증가 할 수 있습니다.
(8) 일반적으로 주위온도가 40°C 이상일 때는 사용전류에 따라 Fan을 사용하여 강제 냉각해야 SSR의 안전한 사용이 가능합니다.

5 - 2. 발열과 열계산 항목

(1) Junction (접합부) 온도 : Tj

- Junction(접합부)이란 반도체의 P-N 접합부를 말하며 이 부분은 소자의 핵심 부분으로 반도체가 동작하여 전류가 흐르면 열(Pw)이 발생하고 또한 열이 발생하더라도 일정한 온도를 유지 하도록 하는 기술적인 조치가 방열기를 사용하는 목적 입니다.

- Junction(온도는 SSR 메이커(Maker)가 추천하는 온도치를 사용합니다. 주소자가 SCR, TRIAC인 경우 온도는 대체로 110 - 125°C 이지만 신뢰성면을 중요시 하여 10°C 정도 낮게 설정합니다.

(2) Junction에서 Case 까지의 열저항 : Rjc

- Junction에서 Case 까지의 열저항도 SSR Maker의 Data를 조사해 이 수치를 사용하며, 단위는 °C/W 표시되고 있습니다. 이것은 1W 소비전력 당 1°C의 온도차를 표시합니다.

(3) SSR Case와 방열기간의 열저항

- Case와 방열기간의 열저항은 방열판에 취부하는 방법에 따라 많은 차이가 있습니다. 직접 방열기에 취부하거나, 절연물을 사용하거나, 방열 그리스를 사용하거나, 방열기의 표면이 가공되었을 때 등에 따라 달라지므로 방열기와 SSR의 부착은 정밀성이 요구 됩니다.

※ 다음은 부착 방법에 따른 SSR의 일반적 접속 열저항 입니다.
→ 직접 부착시 열저항 = 0.1 ~ 0.5 °C/W
→ 씨리콘 그리스 사용시 열저항 = 0.05 ~ 0.5 °C/W

5 - 1. Features of heat sink

Many variables are depending internal condition of heat sink and that of thermaldesign. Design therefore has to be implemented based on the reference of features of heat sink and also it should be cautiously designed since powerelectronics of SSR is radiation. If unless heat sink is used, normal motions will occur initially but main element damage some time later because temp. rise point of internal SSR.

(1) Radiation volume of heat sink is in a proportion to the surface area of heat sink.
(2) Radiation volume of heat sink is in a proportion to the difference between surface temperature of heat sink and the temperature of the surrounding air.
(3) Color black has high radiation effect on the surface of rheat sink.
(4) Function like data of catalog can not be expected unless heat sink is mounting in a vertical direction.
(5) When contact between semiconductor and heat sink are false, effect of radiation is dramatically dropped.
(6) Unless natural convection occur in the place of heat sink, effect of the heat sink is decreased.
(7) Forced Air cooling by fan will be able to increase the performance of heat sink as more than twice as much.
(8) When surrounding temperature is more than 40C, forced Air cooling is required by use of fan according to the oprating c urrent so that safe usage of SSR can be guaranteed.

5 - 2. Thrmal radiation and item to calculate the Thrmal design

(1) Junction temperature : Tj

- Junction indicates the P-N junction of semiconductor and core of Main element. When electric current flows as semiconductor, heat (Pw) occurs and sustains the regular temperature under the heating. It is the function of heat sink.

- Junction temperature is based on the temperature which is recommended by SSR maker. Normaly in case of SCR and TRIAC, temperature is normally 110-125, but around 10 decrease is decided for reliability.

(2) Thermal resistance from junction to case : Rjc

- The figure is decided based on the research of data of SSR maker in terms of thrmal resistance from junction to case and unit is which indicates the temperature gap in per 1W dissipation power.

(3) Heat resistance between SSR case and heat sink

- Thrmal resistance between case and heat sink varies by the method to mounting heat sink plate. It depends on direct attach, using or, using thrmal grease, process of surface of heat sink etc. Mounting of heat sink and SSR must be precis.

※ Following is the junction common thrmal resistance of SSR according ot the method of mounting.
→ Thrmal resistance in case of direct attachment =0.1-0.5 C/W
→ Thrmal resistance when silicon is used =0.05-0.5 C/W.

5. SSR 방열설계와 방열기 선정법 SSR thermal design and heat sink selection

(4) 주위 공기 온도의 결정 (Ta)

앞의 (1)-(3)항목은 사용하는 SSR에 따라 거의 결정되어 있지만 주위 공기 온도는 사용자가 잘 검토하여 결정해야 합니다.설계자는 기기의 구조, 사용상태를 고려하여 장치의 사용 최대온도를 생각해야 하며 제작 완료 후 실제 운전 상태를 사용 최대온도로 고려할 필요가 있습니다. 참고로 SSR 조립 상태의 온도가 40°C일 경우 공기의 유입이 잘 되게 설계된 함체 내부에서는 50°C 정도로 생각하시면 좋을 것입니다. 그러나 직사광선을 받을 가능성이 있는 기계는 80°C 정도 까지 도달하는 경우도 있으므로 주위의 발열체 등을 주의하여 설계하기 바랍니다.

(4) Decision of temperature of surrounding air (Ta)

Item (1)-(3) mentioned above has been almost set by SSR but temperature of surrounding air must be checked by user. Having considered structure of device, status of usage, maximum temperature to be used must be decided. After completion of production, maximum temperature must be considered based on the actual status of operation. For reference, when temperature of SSR assembly is 40℃, internal temperature of object of which inflow of air ventilation is assumed around 50℃. But, machinery which is susceptible to the direct sun ray, temperature might reach up to 80℃. Heating object in this case should be cnsidered.

(5) SSR의 발열량 결정(Pw)

사용하는 SSR의 부하 평균 전류를 계산하여 접점에서 발생하는 DROP 전압과 곱하면 바로 소비전력이 계산 되며 제작사의 소비 전력 곡선표를 사용하여도 가능 합니다.

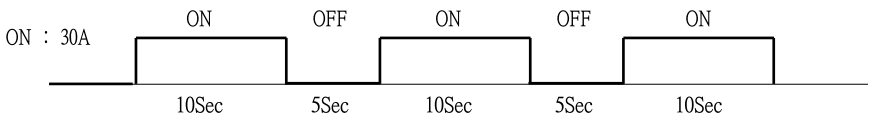
- 소비전력 (Pw)=평균전류×SSR DROP 전압(V)...(1)

(5) Decision of heating of SSR (Pw)

When average electric current of SSR load to be used is multiplied by dropping voltage occurred at the point of contact, consumptive electric power is automatically calculated and it is possible to use chart of consumptive electric power.

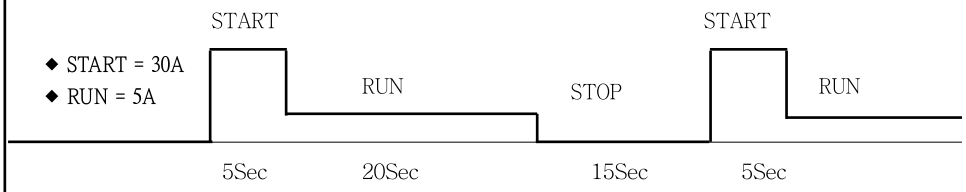
- Consumptive electric power (Pw)= average electric current x voltage of SSR which drops (W).....(1)

● 평균전류계산 (저항부하)
Calculation of average current (resistance load)



◆ $I_{av} = \sqrt{\dfrac{10N^2 \times Ton}{Toff + Ton}} = \sqrt{\dfrac{30A^2 \times 10}{5 + 10}} = 24.5A \cdots\cdots\cdots\cdots\cdots (2)$

● 평균전류계산 (유도부하)
Calculation of average current (inductive load)



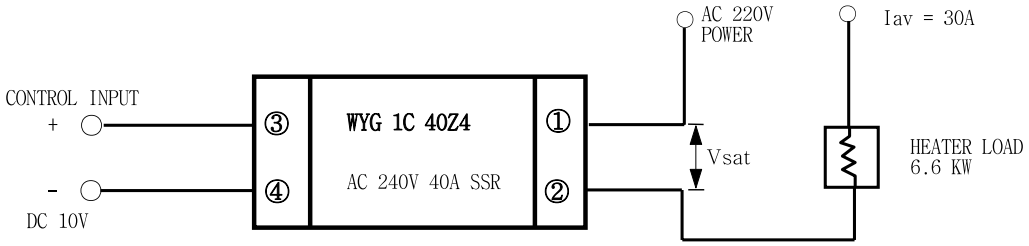
◆ START = 30A
◆ RUN = 5A

◆ $I_{av} = \sqrt{\dfrac{Ista^2 \times Tsta + Iru^2 \times Tru}{Tsta + Tru + Tst}} = \sqrt{\dfrac{30A^2 \times 5 + 5A^2 \times 20}{5 + 20 + 15}} = 11A \cdots\cdots\cdots (3)$

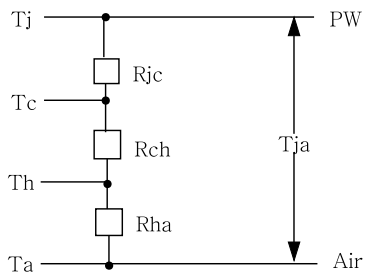
5. SSR 방열설계와 방열기 선정법 SSR thermal design and heat sink selection

5 - 3. SSR 회로의 방열설계 (Thermal design of SSR circuit)

(1) 설계회로도 : 단상 히-터 제어회로
Design circuit : single-phase heater control circuit



(2) 열저항 등가회로
Equivalent circuit of thermal resistance



· Tj : SSR 접합온도(SSR junction temperature)
· Tc : SSR 케이스의 온도.(SSR case temperature.)
· Th : 방열기의 온도.(heat sink temperature.)
· Ta : 주위 온도.(ambient temperature.)
· Pw : SSR의 평균 전력 손실(SSR to average power loss)
· Rjc : SSR 접합부와 케이스간의 열저항.(Thermal resistance between SSR junction and heat sink)
· Rch : SSR 케이스와 방열기 간의 열저항.(Thermal resistance of case and heat sink)
· Rha : 방열기와 주위온도 간의 열저항.(Temperature gap between SSR case and heat sink)
· Tja : SSR 소자 접합부와 공기간의 온도차.(Temperature gap Triac and Air)

(3) 방열기의 열저항 계산
① **사용하는 SSR** : WYG 1C 40Z4
② **SSR 평균소비전력** : Pw = 38W(Iav × Vast = 30A × 1.3V = 39W로 계산하여도 무방)
③ **SSR의 Tj** : 125 °C
④ **SSR의 열저항 Rjc** : 1.1 °C/W
⑤ **SSR의 접합부와 케이스간의 온도 차 Tjc**·····(1)
· Tjc = Rjc(°C/W) × Pw = 1.1 × 38 = 41.8°C
⑥ **SSR CASE와 방열기 간의 온도차 Tch**·····(2)
· Rch = 0.1°C/W 실리콘 그리스 사용(접착 상태에 따라 변화됨)
· Tch = (°C/w)× Pw = 0.1 × 38 = 3.8°C
⑦ **SSR 접합부와 공기 (방열판 주위) 온도차 Tja**·····(3)
· Tj = 125°C → 신뢰성을 고려하여 115°C 로 한다.
· Ta = 40°C → 방열판 주위온도의 최대로 결정.
· Tja = Tj - Ta = 115°C - 40°C= 75°C
⑧ **방열기의 온도 (Th)와 주위 공기 온도 (Ta)의 온도차 Tha**....(4)
· Tha = Tja - Tjc - Tch(°C) = 75°C - 41.8°C - 3.8°C = 29.4°C
⑨ **방열기의 열저항 Rha**·····(5)

$$Rha = \frac{Tha}{P(W)}\ (°C/w) = \frac{29.4}{38} = 0.77(°C/w)$$ → 방열판 규격 DATA.

· 3상 SSR은 위 공식 (5)에서 P(W) × 3 으로 계산 한다.
⑩ **방열기의 CATALOG DATA에서 소요열저항 0.77°CW 이하의 MODEL을 선정하여 사용하거나 SSR 제조업체에서 선정하는 표준형을 사용 합니다.**

(3) Calculation of thermal resistance of heat sink
① **SSR to be used** : WYG 1C 40Z4
② **Average dissipation power of SSR** :
Pw=38W (Iav x Vast =30A x 1.3V=39W)
③ **Tj of SSR :** 125°C
④ **Thermal resistance of SSR Rjc** : 1.1C/W
⑤ **Temperature gap between SSR junction and case :** Tjc .....(1)
· Tjc = Rjc(°C/W) × Pw = 1.1 × 38 = 41.8°C
⑥ **Temperature gap between SSR case and heat sink :** Tch..(2)
· Rch = 0.1°C/W with silicon grease
· Tch = (°C/w)× Pw = 0.1 × 38 = 3.8°C
⑦ **Temperature gap of junction of SSR and air :** Tja **(around of heat sink)**.....(3)
· Tj=125°C →Set temperature to 115°C considering reliability.
· Ta=40°C →Decide maximum value of the ambient temperature of the heat sink.
· Tja=Tj-Ta=115°C-40°C=75°C
⑧ **Difference of temperature** (Tha) **between heat sink temperature** (Th) **and the ambient air temperature** (Ta).....(4)
· Tha=Tja-Tjc-Tch(°…)=75°C-41.8°C-3.8°C=29.4°C
⑨ **Heat sink thermal resistance :** Rha.....(5)

$$Rha = \frac{Tha}{P(W)}\ (°C/w) = \frac{29.4}{38} = 0.77(°C/w)$$ → Hea sink data.

·The 3-phase SSR is calculated as P(W)×3 from the formula (5) shown above.
⑩ **From the catalogue, select and use a model with the required thermal resistance of lessthan 0.77°C/W, or use the standard model selected by the SSR manufacturer.**

5. SSR 방열설계와 방열기 선정법 SSR Thermal design and heat sink selection

5 - 4. 규격 방열기 (알루미늄) 선택의 참고사항.

(1) 냉각방식
→ 자연냉각 또는 강제냉각용인가?
(2) 방열기의 열저항
→ CATALOG DATA 참고하여 설계 열저항 보다 낮은 것을 선택.

(3) 취부방법
→ 통풍을 고려하여 방열 골의 수직취부가 가능한가?
(4) 착색
→ 산처리, 아루마이트, 페인트 등 착색이 되었는가?

(5) 방열기용 SILICON GREASE 의 사용
실리콘 그리스는 열전도성이 큰 금속산화물을 함유하고 있는 그리스형상의 콤파운드로써 우수한 방열성을 갖고 있는 것 외에도 유전율, 절연율등의 전기특성도 매우 훌륭한 제품이며 SSR 및 전력용 소자의 방열판 접합제로 일반적으로 사용하고 있습니다. 방열판과 SSR간 접착면의 불균형으로 생기는 열저항을 최소로 줄여주어 SSR의 방열 효과를 높여 주므로 전력 소자에서는 반드시 사용하여야 합니다.

5 - 4. References of standard heat sink (aluminum) to select

(1) Method of Cooling
→ convection cooling or forced air cooling?
(2) Thermal resistance of heat sink
→ choose the lower than designed thermal resistance based on the data of catalog.
(3) Method of mounting
→ vertical mounting is available at radiating through in a consideration of ventilation ?
(4) Coloring
→ it has been colored by acidification, aluminate or paint?

(5) Use silicon grease for heat sink
Silicon grease is a compound of grease type containing metal oxidization of which thermal conduction is high and obtains excellent electric features such as transmission of electricity and insulation as well as radiation. It is applied for SSR and junction of heat sink of electric unit in general. Minimizing the thermal resistance resulted from imbalance between heat sink and contact of SSR, it increases the radiation so that it must be used for unit of electric power.

5 - 5. Wyes SSR 열설계 DATA (Data of Wyes SSR thermal design)

(1) 단상 SSR 열 data (thermal data of single phase SSR)

APPLICATION SSR	CURRENT(A)	PD(W)	Tj(°C)	Rjc(°C/W)
WYG 1C 10Z4, 10Z40, 10R4	10	11	110	2.60
WYH 1C 10Z4, 10Z40, 10R4	10	15	110	2.00
WYG 1C 20Z4, 20Z40, 20R4	20	20	125	1.20
WYH 1C 20Z4, 20Z40, 20R4	20	28	125	1.20
WYG 1C 30Z4, 30Z40, 30R4	30	32	125	1.00
WYH 1C 30Z4, 30Z40, 30R4	30	32	125	1.00
WYG 1C 40Z4, 40Z40, 40R4	40	55	125	1.00
WYH 1C 40Z4, 40Z40, 40R4	40	55	125	1.00
WYG 1C 50Z4, 50Z40, 50R4 WYH 1C 50Z4, 50Z40, 50R4	50	54	125	1.10
WYG 1C 60Z4, 60Z40, 60R4 WYH 1C 60Z4, 60Z40, 60R4	60	70	125	–
WYH 1C 80Z4, 80Z40, 80R4	80	100	125	–
WYH 1C 100Z4, 100Z40, 100R4	100	110	125	–
WYH 1C 150Z4, 150Z40, 150R4	150	155	125	–
WYMG 1C 60Z4, 60Z40, 60R4 WYMH 1C 60Z4, 60Z40, 60R4	60	70	125	0.55
WYMG 1C 80Z4, 80Z40, 80R4 WYMH 1C 80Z4, 80Z40, 80R4	80	80	125	0.50
WYMG 1C 100Z4, 100Z40, 100R4 WYMH 1C 100Z4, 100Z40, 100R4	100	110	125	0.33
WYMG 1C 150Z4, 150Z40, 150R4 WYMH 1C 150Z4, 150Z40, 150R4	150	155	125	0.25

5. SSR 방열설계와 방열기 선정법 SSR thermal design and heat sink selection

(2) 삼상 SSR열 data (thermal data of three phases SSR)

APPLICATION SSR	CURRENT(A)	PD(W)	Tj(°C)	Rjc(°C/W)
WY3G 3C 10Z4, 10Z40, 10R4, 10R40	10	33	100	0.90
WY3H 3C 10Z4, 10Z40, 10R4, 10R40	10	45	110	0.73
WY3G 3C 20Z4, 20Z40, 20R4, 20R40	20	60	125	0.46
WY3H 3C 20Z4, 20Z40, 20R4, 20R40	20	60	125	0.46
WY3G 3C 30Z4, 30Z40, 30R4, 30R40 WY3H 3C 30Z4, 30Z40, 30R4, 30R40	30	94	125	0.43
WY3G 3C 40Z4, 40Z40, 40R4, 40R40 WY3H 3C 40Z4, 40Z40, 40R4, 40R40	40	165	125	0.43
WY3× 3C 60Z4, 60Z40, 60R4, 60R40	60	210	125	–
WY3× 3C 80Z4, 80Z40, 80R4, 80R40	80	240	125	–
WY3× 3C 100Z4, 100Z40, 100R4, 100R40	100	330	125	–
WY3× 3C 150Z4, 150Z40, 150R4, 150R40	150	445	125	–

※ Rjc ("-" self heat sink type SSR)

6. SSR의 안전한 부하설계 Safe load design of SSR

SSR는 부하상태에 따라 선정 기준이 여러 가지 규격으로 달라지므로 부하규격에 맞는 Model을 선정하여야 경제성 있게 사용할 수 있습니다. SSR은 전자회로와 반도체 (Solid State)소자를 이용한 고가의 복합 제품이므로 일반 MC 와 같이 적당히 설계하여 사용하면 순간적 실수로 SSR이 파괴되어 경제적인 손실과 적용기기의 제품 신뢰성이 떨어지므로 처음 적용할 때 부터 안정성을 고려하고 치밀한 규격 설계를 하여 장기간 신뢰성 있게 사용하면 초기 투자는 기계적인 방법으로 설계하였던 방법보다 경제성과 기기의 품질이 향상하였다고 볼 수가 있습니다. 그러므로 부하의 각종 Data를 종합하여 임의 규격이 결정되면 투자의 범위가 허락 하는 한 부하규격의 최대 2배 이상의 규격으로 SSR을 선정하면 안정성이 있습니다.

Since the selection criteria of SSR varies according to the specification, model which is appropriate to specification of load must be used for economic efficiency. SSR is an expensive combined(solid state) product by use of electric circuit and semiconductor unit. If it is designed commonly like general MC, SSR might be broken by unexpected false which causes economic loss as well as decreases the reliability of product. Therefore, it should be precisely designed from the beginning in a consideration of stability to use reliably on a long term basis. It can be evaluated that initial investment brought economic gain and enhanced quality than design of mechanical method. When certain specification is decided based on the various data on load, SSR which is two times larger than specification of load had better be designed for stability as far as it is allowed from the perspective of investment.

6 - 1. 부하 특성과 SSR 기능별 구분(Load & SSR type charactistic)

CHARACTER	KIND OF LOAD	LOAD CAP.	SSR	SSR MODEL(Wyes SERIES)	
Small "R, L" LOAD	Solenoid Valve, Lamp, Relay	AC 220V/3A 1PHASE	Zero Cross Type	WYP-3A. WYPM-3A.	WYPS - 3A. WYPV - 3A.
Small "L" LOAD	1P, 3P Motor Transformer. Inductance Motor	AC 220-440V/40A	Random Type	WYG 10A-40A. WY3G 10A-40A.	WYH 10A-40A. WY3H 10A-40A.
Large "L" LOAD	1P, 3P Motor Transformer. Inductance Motor	AC 220-440V/150A	Random Type	WYMG 60A-150A. WYH 60A-150A.	WYMH 60A-150A. WY3× 60A-150A.
Small "R" LOAD	1P, 3P Heater LAMP. RELAY.	AC 220-440V/40A	Zero Cross Type	WYG 10A-40A. WY3G 10A-40A.	WYH 10A-40A. WY3× 10A-40A.
Large "R" LOAD	1P, 3P Heater	AC 220-440V/150A	Zero Cross Type	WYMG 60A-150A. WYH 60A-150A.	WYMH 60A-150A. WY3× 60A-150A.

- 저항성 부하의 ON / OFF용은 Zero Cross형 SSR을 사용하여야 합니다.
- 순수한 용량성(Capacitor) 부하는 SSR 사용이 불가능하므로 설계시 주의 바랍니다.
- 유도성 부하에서는 Zero Cross형 또는 Random 형 모두 사용 가능하나 용량이 클수록 Random 형을 사용하는 것이 안전합니다.
- 유도성 부하에서는 Surge 전류, 전압에 대한 대책을 반드시 설계에 포함하도록 합니다.
- M/C, 인버터 등의 유도성 제어장치와 함께 사용시는 사용되는 판넬의 surge나 노이즈 환경을 반드시 확인, 측정후 SSR를 적용하시기 바랍니다.

- With regard to on/off type of resistant load, SSR of zero cross type must be used.
- Precaution is required in terms of design because it is impossible to use SSR for load of pure capacitor.
- Both zero cross type or random type of inductive load are used, but random type is recommended to be used as inductance is larger.
- Measure of surge current and voltage must be designed in terms of inductive load.
- When inductive load such as M/C and inverter etc. are connected in the internal panel, measure of surge must be considered.

6 - 2. 유도부하의 SSR 적용표 (Table of SSR application for inductive load)

(1) 단상 AC Motor 마력(HP) 대 기동전류 및 운전전류 와 적용 SSR
Starting current and operation current of single phase AC motor (HP) vs SSR

MOTOR	110V MOTOR			220V MOTOR			440V MOTOR			Operating condition
H.P	LOAD(A)	START(A)	APPL. SSR(A)	LOAD(A)	START(A)	APPL. SSR(A)	LOAD(A)	START(A)	APPL. SSR(A)	
1/16	1.9	11.4	10							
1/10	2.6	15.6	20							
1/8	3.4	20.4	20							
1/6	4.2	25.2	30	2.1	12.6	10				
1/4	5.5	33.0	30	2.8	16.8	20				
1/3	6.8	40.8	40	3.4	20.4	20	1.8	10.8	10	• use with standard heat sink • start time within 2sec
1/2	8.4	50.4	50/60	4.2	25.2	30	2.4	15.0	20	
3/4	12.4	74.4	70/80	6.2	37.2	20	3.2	19.2	20	
1	14.7	88.2	80	7.2	43.2	40	3.9	23.4	30	
1.5	20.0	120.0	100	10.0	60.0	60	5.0	30.0	20	
2	25.2	151.2	150	12.6	75.6	80	6.2	37.2	40	
3				17.9	107.4	100	8.0	48.0	50/60	
5				29.4	176.4	150	13.0	78.0	70/80	
7.5							21.0	126.0	150	
10							26.0	156.0	150	

6. SSR의 안전한 부하설계 Safe load design of SSR

(2) 삼상 AC MOTOR 마력(HP)대 기동전류 및 운전전류 와 적용 SSR
Starting current and operation current of three phases AC motor (HP) vs SSR

MOTOR	220V MOTOR			440V MOTOR			Operating condition
H.P	LOAD(A)	START(A)	APPL. SSR(A)	LOAD(A)	START(A)	APPL. SSR(A)	
1/2	2.0	12.0	10	0.9	5.4	10	• use with standard heat sink • start time within 2sec
3/4	2.9	17.4	20	1.5	9.0	10	
1	3.7	22.2	20	1.9	11.4	10	
1.5	5.4	32.4	20	2.6	15.6	10	
2	6.9	41.4	30	3.4	20.4	20	
3	10.0	60.0	40	4.6	27.6	20	
5	15.8	94.8	60	7.5	45.0	20	
7.5	23.1	138.6	80	11.0	66.0	40	
10	29.4	176.4	150	14.0	84.0	60	
15				20.0	120.0	80	
20				26.0	156.0	100	

6 - 3. 저항부하의 SSR 적용표 (Application table of SSR for resistant load)

(1) 단상,삼상 SSR 전류규격 대 Heater 전력규격
specification of single and three phases SSR vs heater power

SSR Current (A) 1PHASE, 3PHASE AC220V~440V		HEATER LOAD CAP.						Operating condition
		1PHASE HEATER(KW)			3PHASE HEATER (KW)			
curr. rating(A)	avg.current(A)	220V	380V	440V	220V	380V	440V	
10	8	1.8	3.0	3.5	3.0	5.3	6.1	• use with standard heat sink • ambient temperature lessthan 40°C
20	16	3.5	6.1	7.0	6.1	10.5	12.2	
30	24	5.3	9.1	10.6	9.1	15.8	18.3	
40	32	7.0	12.2	14.1	12.2	21.1	24.4	
50	40	8.8	15.2	17.6	15.2	26.3	30.5	
60	48	10.6	18.2	21.1	18.3	31.6	36.6	
70	56	12.3	21.3	24.6	21.3	36.9	42.7	
80	64	14.1	24.3	28.2	24.4	42.1	48.8	
100	80	17.6	30.4	35.2	30.5	52.7	61.0	
150	120	26.4	45.6	52.8	45.7	79.0	91.4	

7. SSR의 접점보호 회로설계 Circuit design to protect contact of SSR

• SSR 및 ThyrIstor 를 사용한 장치가 만족하게 동작하는가의 여부는 열설계가 완벽할 때 그 시스템이 비정상적인 과전류상태에서 어느 정도 견딜 수 있으며 고가인 SSR 또는 반도체의 파괴를 어느 정도 보호하느냐에 좌우됩니다.이것에 대하여 명백한 해결법은 사고전류가 흘러도 충분히 견딜 수 있거나,경제성에 관계없이 소자의 파괴에 문제점이 없을 때 외에는 정격부하에 적합한 SSR을 사용하여 사고시 완벽한 과부하 보호장치를 하여야 합니다. 일반적인 방법으로 기존의 MC에 사용하며 전력장치 회로에 많이 부착하는 과전류 차단기나 기타 속단형 스프링 Fuse는 AC 실효전류에 의한 차단장치이므로 근본적으로 급격한 사고 전류에서 SSR 또는 반도체를 보호 할 수 없습니다. SSR의 부하 쇼-트등 돌발사고 과전류에서 접점을 완벽하게 보호 하기 위하여 반도체 보호 전용 휴우즈(Semiconductor - Protection Fuse)가 오래 전부터 개발되어 사용되고 있으며 다음은 이 FUSE의 적용방법을 간단히 설명하고자 합니다.

• Whether device of SSR and Thyristor operates satisfactorily or not depends on how much the system can resist at abnormal excessive electric current and how much protect expensive SSR or semiconductor from breakage in case of absolute thermal design. The optimal status is when appropriate SSR is used at rated load and protective device of overload is available in case of error other than it can be resistant under the electric current of error or there is no problem to power element regardless of economic loss. The general method i.e., interceptor of excessive current which is used for existing MC/ affixed at the electric device circuit and other spring fuse are interceptor by AC effective electric current, they can not protect SSR or semiconductor at dramatic error electric current. In order to protect point of contact under the excessive current absolutely such as load short of SSR, semiconductor-protection fuse has been developed for a long time ago. Method to apply the fuse will be briefly described as below.

7 - 1. 반도체소자의 I^2T(전류자승시간) 에 대하여

이것은 지속시간이 매우 짧은 펄스(10mS)에 대하여 비반복 최대 전류량을 표시하는 단위로 여기서I는 실효치 전류이며 단위는 (A)암페어이고, T 는 지속시간으로 단위는 (S)초로 나타낸 것입니다. I^2T 규격은 일반적으로 반도체가 AC 반싸이클 내에 접점이 파괴되는 최대 전류자승 시간이며 이 규격치는 반도체 소자에는 반드시 규정하고 있습니다.

7-1. I^2T of semiconductor element

It is a unit to indicate unrepeatable maximum electric current volume against short duration time, 10mS. I is an electric current of practical value and unit is (A). T is a durable time and indicated by (S), second as an unit. With regard to the specification ofI^2T, it is normally maximum current square time when point ofcontact of semiconductor is broken within the AC half cycle and the specification of semiconductor element is regulated by all means.

7 - 2. Wyes SSR Series I^2T 규격표 (Specification table of Wyes SSR series I^2T)

(1) 단상, 삼상 AC 220V 용 SSR 대 I^2T 규격 및 SURGE 전류

I^2T specification and surge current vs SSR of single and three phases AC 220V

SSR current rating (A)	CONTACT CAPACITY		Operating condition
WYG 1C series WYMG 1C series WY3G 3C series	Surge Current (A)	I^2T Standard	
10	125	72	• Tj initial = 25°C • Non repetitive • T = 10mS • 1phase current of 3phase current
20	260	250	
30	300	450	
40	315	450	
50	525	1,250	
60	1,300	7,200	
70	950	3,745	
80	1,750	12,800	
100	1,950	16,200	
150	2,550	26,500	

(2) 단상, 삼상 AC440V용 SSR 대 I^2T 규격 및 SURGE 전류

I^2T specification and surge current vs SSR of single and three phases AC440V

SSR current rating (A)	CONTACT CAPACITY		Operating condition
WYH 1C series WYMH 1C series WY3H 3C series	Surge Current (A)	I^2T Standard	
10	170	72	• Tj initial = 25°C • Non repetitive • T = 10mS • 1phase current of 3phase current
20	250	265	
30	350	610	
40	370	610	
50	525	800	
60	1,300	7,200	
80	1,750	12,800	
100	1,950	16,200	
150	2,550	26,500	

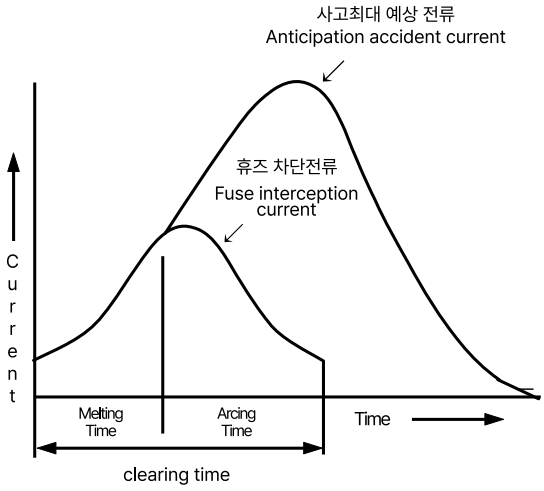
7. SSR의 접점보호 회로설계 Circuit design to protect contact of SSR

7 - 3. 반도체 보호 FUSE 의 개요

반도체 보호 휴즈(Semiconductor Protection Fuse)는 특수한 구조로 외부연결접점, 열보호통, 휴즈 엘레멘트 등으로 이루워 졌으며 외관 구조는 원통형, 사각형, 차단 시 경보접점 부착형 등이 있습니다. 특히 내부 휴즈 엘레멘트는 특수한 구조로 제조되어 규정한 전류이상 사고전류가 흐르면 SSR의 접점보다 먼저 고속융해(融解) 차단 되므로 완벽하게 보호할 수 있습니다. 이 휴즈는 기본적으로 제조회사로부터 사용전압, 1차 융단시간, 차단부의 아아크(ARC)시간, 1차 융단전류, 전차단 제한전류등이 Data로 제공되며 다음 그림은 휴즈의 동작상태를 그래프로 나타낸 것으로 실제 설계시는 실효전류와 사용전압 및 전차단 전류가 중요합니다.

7 - 3. Overview of semiconductor protective fuse

Semiconductor protection fuse is a special structure and composed of linking point with external, container to protect heat, fuse and element etc. Concerning external structure, there are cylinder, rectangle and type to affix warning linkage etc. Particularly, internal fuse element is produced with special structure which is intercepted by rapid melting earlier than linkage of SSR when error current more than regulated electric occurs for absolute protection. For this fuse, usage voltage, the first melting/cutting time, ARC time at the interceptor, the fist melting/cutting electric current and limited electric current for complete interception are provided for data. Status of motions are manifested in the following picture by graph. In case of actual design, effective electric current, voltage to use and current for complete interception are important.



- 휴우즈 차단 전류 : 휴우즈에 흐르는 최대전류치(차단전류)
- 사고최대예상전류 : 전기회로의 부하 단락시 최대 예상전류치
- 융해(融解)시간 : 과전류에 의하여 휴우즈가 융해 되어지는 시간 (MELTING TIME)
- 아아크 시간 : 휴우즈 소자가 융해 되면서 발생하는 ARC 시간 (ARCING TIME)
- 전차단 시간 : 휴우즈가 완전이 차단되는 전체 시간. (CLEARING TIME)

7-4 반도체 휴즈의 규격 설계 Design of semiconductor fuse

과전류에서 SSR을 보호하기 위하여는 다음 조건들을 고려 하여 반도체 휴즈를 설계, 적용하여야 합니다.

design of semicondutor fuse is conciders of follwing parameters

(1) 부하 회로의 실효전압 ····· AC 220V 단상회로
(2) 최대 연속 부하전류 ····· AC 12A
(3) 사고발생시 예상되는 최대전류 ····· AC 200A (회로의 전원 출력과 임피던스에 따라 변화됨)
(4) 사용 되는 SSR 의 전류규격과 I^2T ····· AC 20A - 265 A ^{2}S (SSR : WYG 1C 20Z4 - 20A)
(5) FUSE 규격 선정 ····· AC 250V - 15A / 60 A ^{2}S (GOULD A25×-101 AMP - TRAP)

(1) Effective voltage of load circuit ····· AC 220V circuit of single phase
(2) Maximum operating load current ····· AC 12A.
(3) Maximum anticipation accident current ····· AC 200A.(it is varied by output of power source of circuit and impedance)
(4) Current rating of SSR and I^2T to be used ····· AC 20A - 265 A^2S (SSR : WYG 1C 20Z4 - 20A).
(5) Selection of fuse specification ····· AC 250V-15A / 60 A^2S (GOULD A25-101 AMP - TRAP).

※ Current comparison : LOAD current 〈 FUSE current 〈 SSR current = 12A 〈 15A 〈 20A
※ I^2T comparison : FUSE I^2T 〈 SSR I^2T = 60 A^2 S < 265 A^2 S

7. SSR의 접점보호 회로설계 Circuit design to protect contact of SSR

7 - 5. 기타 보호회로 설계 주의사항

(1) Fuse의 규격전압과 회로의 부하전압과는 같은 규격으로 설계하여야 하며 회로전압보다 Fuse 전압이 높을 경우에는 회로 전압의 일정비율로 Fuse의 I^2 T 가 규격보다 줄어 부하 전류에 의하여 차단되는 경우가 있습니다.
(전압이 2배....전류 ×0.5)

(2) 부하 실효전류의 변화가 심할 때는 Fuse 및 SSR의 용량을 여유 있게 설계하여야 합니다.여유가 없으면 동작중에 Fuse가 점점 파괴되어 임의 시간 후 Fuse가 단락 됩니다.

(3) Fuse를 연결할 때 같은 폐회로내 1개의 Fuse를 연결할 때와 2개를 직렬로 연결할 때의 전류 규격이 변화하므로 Fuse 제조회사 Data를 참고하기 바라며 Data가 없을 경우는 규격에 0.6를 곱하면 대략 규격치를 얻을 수 있습니다.

(4) 삼상 회로에서는 전 부하전류와 상 전류와는 차이가 있으므로 (전부하전류×$\sqrt{3}$ = 상전류) 전 부하전류로 Fuse 규격을 선정하지 않도록 주의해야 합니다.

(5) Motor등 유도부하에서는 기동전류를 감안하여 기동전류에 Fuse가 차단되지 않도록 기동전류를 실 최대전류로 계산 하고 Fuse와 SSR이 선정되도록 설계 되어야 합니다.

(6) 부하의 급격한 사고전류 외에 과부하전류는 Fuse에서도 차단되지 않으며 SSR 또는 부하의 손상을 가져오므로 전자식 또는 열동식 과전류 차단기를 사용하여야 합니다.

7 - 5. Precaution in case of design of other protective circuit.

(1) Rated voltage of fuse and load voltage of circuit must be designed at same value. When fuse voltage is higher than circuit voltage, I^2T of fuse is reduced at proportional rate of circuit voltage than specification and can be intercepted by load current
(2 times of voltage ..... Electric current x 0.5)

(2) When effective current of load varies seriously, fuse and SSR must be designed flexibly. If not, fuse may be destroyed gradually and cut after certain lapse..

(3) When fuse is connected, electric current varies depending on one fuse is connected in the same closed circuit or two fuses are connected at series. Therefore, data of manufacturing company must be referred. Otherwise, brief value of specification can be obtained by multiplying 0.6 to the specification.

(4) Because there is an inconsistency between Total load current and phase current in case of three phases (Total load current x$\sqrt{3}$ = phase current). Precaution must be made in order not to select fuse specification by Tota load current.

(5) Starting current must be calculated by practical maximum current in order not to intercept fuse by current to start in case of inductive load such as motor etc.

(6) Because overload current excessive other than dramatic error of load is not intercepted at the fuse and causes damage at SSR or load, electronic or thermal acting interceptor of over current must be used.

8. SSR의 과도 전압 방지에 대한 설계 Design for prevention of transient voltage of SSR

8. SSR의 과도전압 방지에 대한 설계

SSR를 Motor등 유도부하에 사용할 때는 전원의 개폐시 큰 과도전압이 발생합니다. 이 과도전압이 SSR의 주 접점 소자의 OFF 상태 최대전압 (Vdrm : Repetitive Peak Off-State voltage)을 초과하면 소자가 파괴될 우려가 있으므로 SSR의 접점 또는 부하에 이 과도전압을 흡수할 수 있는 과도전압 흡수소자를 부착하여야 안전한 동작을 유지할 수 있습니다. 이 흡수 소자로 저항, 제너다이오드를 종전에는 사용하였으나 지금은 금속 산화물 바리스타(Metal Oxide Varistor) 약칭 바리스타(MOV)를 일반적으로 사용하고 있으며 SSR의 과도 전압에 의한 파괴를 절대적으로 보호할 수 있는 소자로 평가 됩니다.

8. Design for prevention of transient voltage of SSR

When SSR is used at inductive load such as motor etc. transient voltage occurs in case of open/close of power source. If the transient voltage is over peak off-state voltage at the main elecment of SSR (Vdm : repetitive peak off-state voltage), main elecment is likely destroyed. Therefore, unit to absorb transient voltage must be affixed at the point of contact or load for safe motions. resistor, Zener diode have been used as an absorb unit but now metal oxide varistor namely MOV are commonly used and this is evaluated as an unit to protect SSR completely from transient voltage

8 - 1. Wyes SSR 의 허용 최대 PEAK 전압 Available peak voltage of Wyes SSR

SSR SERIES		NON REPETITIVE PEAK - OFF VOLTAGE (V)	MAXIMUM VOLTAGE (V)	OTHERS
WYP	2 ~ 3A	600	AC240	
WYG	10A-40A	600	AC240	
WYMG	60A-150A	600	AC240	
WY3G	10A-40A	600	AC240	Each Phase
WYH	10A	800	AC240	
WYH	20-40A	1,200	AC480	
WYH	60A-150A	1,200~1,600	AC480	
WYMH	60A-150A	1,200~1,600	AC480	
WY3H	10A	800	AC480	Each Phase
WY3H	20-40A	1,200	AC480	Each Phase
WY3H	60A-100A	1,200~1,600	AC480	Each Phase

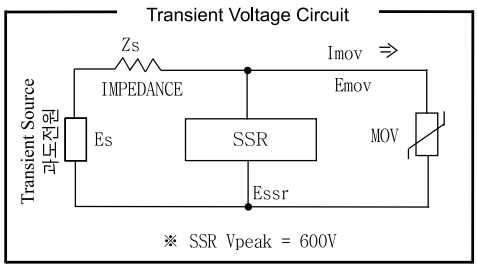
8 - 2. 과도전압 방지 회로설계 개요. (Overview of circuit design to prevent transient voltage)

바리스타의 규격선정에서 먼저 고려 하여야할 사항은 부하로부터 발생하는 과도전압의 크기, 부하 회로의 임피던스, SSR접점의 PEAK 전압 등 DATA를 규정한 후 바리스타의 규격을 선정해야 합니다. 그러나 이러한 DATA를 회로설계에서 산출하기는 일반적으로 어려운 일이므로 부하 상태를 참고하거나 실측하여 DATA를 얻은 후 다음과 같이 등가회로를 작성합니다.

With regard to items to be considered in selecting the specification of Varistor, data of size of transient voltage, impedance of load and voltage of contact point of SSR at peak etc. must be decided prior to the selection of specification of Varistor. Because it is difficult to get these data at the stage of circuit design, load status is either referred or data is available by actual measure. Equivalent circuit is obtained as below after wards.

● 과도전압 측정 DATA (예)
Data to measure transient voltage (example)

◇ 과도 전압(Transient voltage)····· 3 KV/30(us)
◇ 회로 임피던스(Circuit impedance)· 50Ω



8 - 3. 바리스타 (MOV)의 규격 설계 Specification design of Varistor (MOV)

(1) 설계된 등가회로에서 DATA를 얻습니다.
- 과도전압 (Es) 측정치 : 3KV / 30μs
- 회로 임피던스 (Zs) : 50Ω
- SSR PEAK전압(Essr) : 600V(8 - 1 항 SSR Data에서)
- 회로 전원전압 : AC 220V
- 과도전압 발생 횟수 : 100,000회/ 10Sec 간격

(1) Data is available from the equivalent circuit to be designed
- Measured figure of over voltage (Es) : 3kV/30us
- Circuit impedance (Zs) : 50Ω
- SSR peak voltage (Essr) : 600V (from data of SSR 8-1)
- Power voltage of circuit : AC 220V
- Frequency of transient voltage : 100,000 times/10Sec interval.

8. SSR의 과도 전압 방지에 대한 설계 Design for prevention of transient voltage of SSR

(2) 바리스타의 실효전압 규격과 바리스타 전압을 선정합니다.

(이하 계산 "예"는 Tnr Series 의 제품 Data를 참고하여 계산함)

- 전원전압 × 10% < 바리스타 전압 = AC 220V × 10% = 242V(ACrms) 이상.
- 245V은 실효전압 250V의 TNR××G391K 에 해당. (××표시는 바리스타 크기임)
- 391K의 바리스타 최대 전압 : 429V → SSR PEAK 허용전압 600V 이하 이므로 적합.

(3) 등가회로의 바리스타의 전류를 계산한다.

(2) Selection effective voltage and limiting voltage of Varistor.
(Example is calculated based on the data of TNR series product here in after)

- Source voltage × 10% < Varistor voltage =AC 220V × 10% = more than 242V(AC rms) .
- 245V is equivalent to TNR x x G391K of effective voltage 250V (x x is a size of Varistor).
- Varistor maximum voltage of 391K : 429V appropriate since SSR peak voltage is less than 600V).

(3) Varistor current calculated at equivalent circuit.

- Es(max) = (Imov. Zs) + Emov.....(1)
- $Imov = \frac{Es - Essr}{Zs}$ .....(2) Varistor current
- $Imov = \frac{3000-600}{50} = 48\ A$

(4) 바리스타의 동작시간을 Pulse Life Time Rating(수명시간) 곡선표에서 비교합니다.

1차 전기적 규격외에 과도 전압 발생 횟수에 따라 바리스타의 수명이 달라지므로 바리스타 Data중 수명 특성 곡선에서 바리스타의 Peak 전류와 Pulse 폭의 규격의 좌표가 Pulse 동작 발생수 곡선의 이상이 되는지 검토합니다.

- 전류(48A) / Pulse 크기(30uS이하)의 좌표 → 비교 ← 10만회 과전압 발생 횟수 곡선.
  비교 결과 규격에 적합하지 않을 경우에는 바리스타의 그래프 상,하로 찾아 알맞는 그래프에서 규격을 선정합니다.

(4) Operation time of Varistor is compared at curve graph of pulse life time rating.

Since duration of varistor varies according to the frequency of transient voltage other than the first electric standard, coordinates of peak current of varistor and width of pulse at duration curve graph must be checked if they are over curve graph of pulse motions.

- Current (48A) / size of pulse (less than 30uS) →comparison ←frequency graph of transient voltage of 100,000 times.

When it is improper resulted from outcome of comparison, select standard by finding up and down of Varistor graph.

(5) 바리스타의 직경 크기를 선정 합니다.

바리스타는 같은 실효 전압에서는 전기적 특성이 같으나 과도 전압의 크기, Pulse의 지속 시간에 따라 소자 직경의 크기가 결정되며 이 크기는 각 생산회사의 Model 번호의 규격으로 분류하고 있습니다.
(TNR15G×××× = 직경15 mm 이다.)

※ " 예 "로 제시한 회로에 적합한 바리스타는 TNR15G391K Type으로 확정합니다.

(5) Select size of diameter of Varistor.
In other words, though electric feature is identical at the effective voltage, diameter size of Varistor varies depending on size of transient voltage and lapse time of pulse. This size is classified by model number of each producers.
(TNR15G x x x x = diameter is 15mm.)

※ Varistor which is appropriate circuit as an example is decided by TNR15G391K type

(6) 바리스타의 연결방법

SSR의 접점, 전원전압, 부하등에 병렬로 접속하며 되도록 과도전압 발생원에서 가까운 측에 짧은 배선이 되도록 부착합니다.

(6) Method to connect Varistor
It must be affixed with short wiring at the source of transient voltage nearest possible by connecting at parallel circuit to the contact point of SSR.

(7) 주의사항

바리스타 선정은 항상 설계 규격보다 여유를 가지도록 선정하며 예상외의 강한 Surge 전압이 발생할 때 Surge를 흡수함과 동시에 MOV가 자체적으로 쇼트 되어 전원의 사고를 유발할 우려가 있으므로 바리스타 부착회로 앞에 반드시 Fuse를 부착하여 이를 사전에 방지하여야 안전합니다.

(7) Caution
Always select a varistor which more than fully satisfies the design specifications so that it can absorb surge when there is an unexpected strong surge voltage. Since MOV may automatically be short-circuited leading to power supply error, must attach fuses to the front of the varistor circuits to prevent such phenomena and to ensure safety.

9. SSR 응용회로 Applied circuit of SSR

9. SSR 응용회로

전기회로에서 일반적으로 많이 활용하는 회로를 선정하여 SSR를 사용하는 회로로 재설계하고 아래와 같이 구성하였습니다. 이 회로를 실제 사용하려면 부하 또는 주변의 조건과 각종 세밀한 Data를 참고하여,제작하고자 하는 장치에 맞게 응용하기 바랍니다.

9 - 1. 단상 SSR를 이용한 A 접점, B 접점 회로

- 2개의 SSR(AC입력 형, DC입력 형)을 이용하여 단상 2개의 부하에 입력 신호에 따라 A,B 접점이 되도록 구성하여 부하가 교번으로 동작 시키는 회로이다.
- 저항부하 및 유도부하도 가능하며 AC90V - 220V, 전류 10A - 150A 까지 사용가능 하다.
- 동작은 SW1이 ON 일때 L1 부하가 ON이 되고, OFF 일때 L2가 ON 이 된다.

9. Applied circuit of SSR

Circuit which is commonly used at the electric circuit has been selected and circuit of SSR was redesigned to structure as follows. In order to use the circuit, please refer to the surrounding conditions and various data in detail and apply them to the device to be produced.

9 - 2 Circuit of Contact point of A and B by use of single phased SSR

- It is a circuit to make A and B contact point according to the input signal at the two single phases by use of 2 SSR(AC input type, DC input type) so that load alternate operated .
- Resistant load and inductive load are available up to AC90V-220V, current 10A-150A.
- With regard to motions, L1 load is on when SW1 is on and L2 is on when it is off.

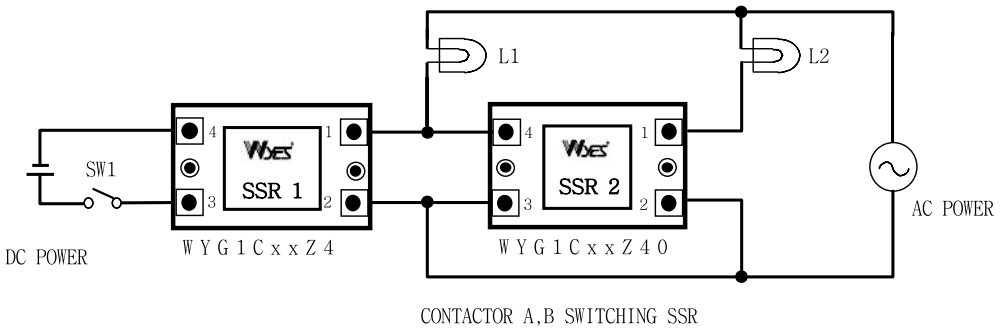


FIG 1

※ SSR 1 = DC Type (WYG1CxxZ4), SSR 2 = AC type (WYG1CxxZ40)

9 - 2. 단상 SSR을 이용한 Latching(자기유지) 회로

- AC 입력형 SSR 을 이용한 단상회로의 SSR자기유지(Latching) 회로는 다음과 같습니다.
- 전원 동작 범위는 AC90 - 220V, 전류 10A - 150A 까지 동작 가능합니다.
- 동작은 Start SW1를 ON하면 바로 SSR이 ON되어 자기 유지되고, Stop SW를 Off 하면 SSR이 Off 된다. 부하전류 1A 이하인 부하에서는 정확한 동작을 기대할 수 없습니다.

9 - 2 Latching by use of a single phase SSR (Latching circuit)

- SSR latching circuit at the single phase circuit by use of SSR with AC input type is as below.
- With regard to the range of electric power, it is able to operate at AC 90-220V and 10A -150A of electric current
- When start switch is on, SSR immediately is on and latching. On the other hand, SSR is off when stop switch is off. Accurate operation is, however, not expected at the less than 1A of load current.

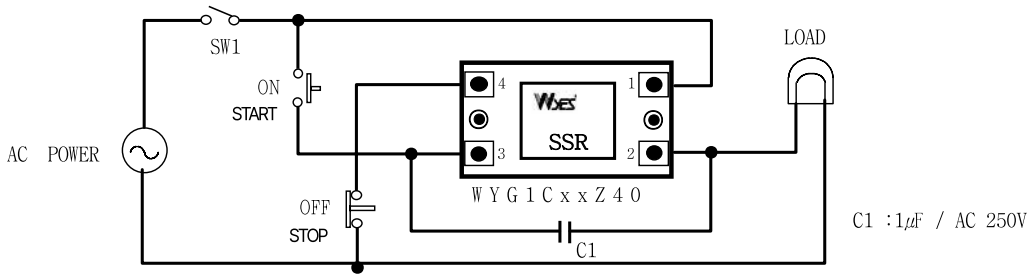


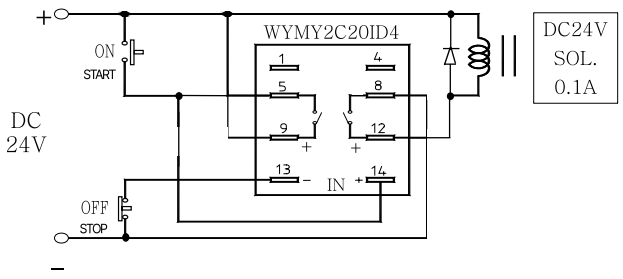
FIG 2

※ SSR = AC 입력형 (WYG1CxxZ40).

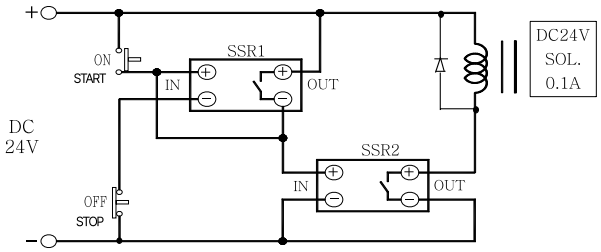
9. SSR 응용회로 Applied circuit of SSR

9 - 3. DC SSR 을 이용한 자기유지 (Latching) 회로
Latching circuit by use of a DC SSR (latching circuit)

1) 2회로 SSR 1개 이용
(use of 1 SSR by 2 circuit SSR)



2) 1회로 SSR 2개 이용
(1 Circuit by use of 2 SSR)



9 - 4. SSR 을 이용한 Relay 아크(ARC) 방지회로.

- 일반식 Relay 또는 M/C(Magnet Contactor)는 OFF 시 접점에 아크(ARC)가 발생하여 접점의 손상 및 노이즈가 발생하므로 이것을 방지하고, Motor의 기동전류로 인하여 SSR은 운전전류보다 큰 용량 (6배 이상)이 필요하나 이 회로를 사용하면 운전 전류와 같은 용량으로도 사용가능합니다. 또한 SSR에 사용해야 되는 방열판이 불필요합니다.
- SW1이 ON 되면 먼저 M/C가 동작하고 일정시간 후 SSR이 동작합니다. S1이 Off 되면 M/C가 먼저 OFF되고 일정 시간 후 SSR이 Off되므로 SSR의 돌입전류를 감소시키고 M/C의 아크를 방지할 수 있습니다.
- 사용가능한 SSR은 AC 90~480V, 10~150A 이내에서 선택할 수 있습니다.

9 - 4. Circuit to prevent relay arc by use of SSR

- General relay or M/C (Magnetic Contractor) may face ARC at the contact point in case of off which damages contact point and cause noise. It must be prevented. SSR is required to be more than 6 times larger than that of operation current because of inrush current of motor to start, but it is acceptable to use equivalent capacity of operation current if this circuit is used. Also heat sink to be used for SSR is not required.
- When SW is on, M/C operates first and then SSR after a while. If SW is off, M/C is off first before SSR is off so that M/C and SSR operates in a supplementary manner and ARC of M/C can be prevented.
- You can select SSR about AC 90~480V, 10~150A.

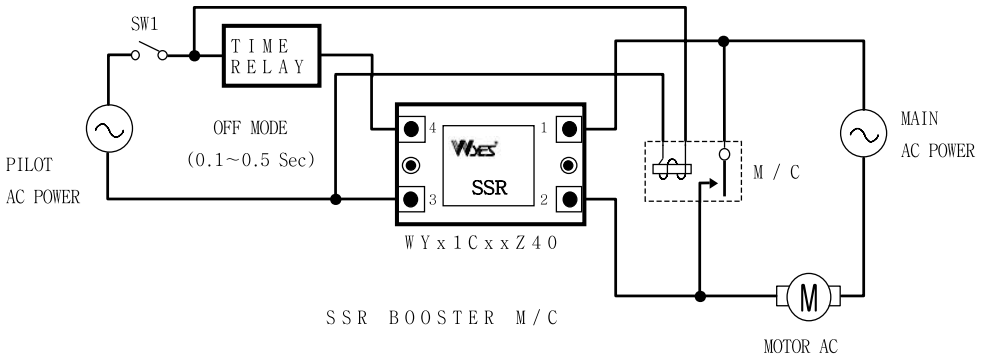


FIG 3

※ SSR = AC 입력형(WYx1CxxZ40).

9 - 5. 단상 SSR을 이용한 용량이 높은 유도부하 안전회로

- 용량이 높은 유도부하(Transformer, Solenoid)는 순간 전기적 Charge 및 Discahrge가 크므로 SSR의 동작이 불안정 하고 Switch 동작이 원활하지 못하여 아래 회로와 같이 결선하면 안전한 동작을 이룰 수 있습니다.
- 사용 SSR는 반드시 Random형을 사용하여야 하며 안전저항 R2은 부하 코일의 DC저항을 측정하여 같은 용량으로 연결하면 됩니다. (저항 발열에 주의)
- 사용가능한 SSR은 AC 90~480V, 10~150A 이내에서 선택할 수 있습니다.

9 - 5. Safety circuit of inductive load of high capacity by use of single phase SSR

- Inductive load(Transformer, Solenoid) of high capacity are lage of instant electric charge and discharge motion of SSR is unstable. So, safe motion will be available if it is connected to the following circuit.
- SSR must be a random type and safety resistance of R2 must be equivalent to that of DC resistance of load coil.(caution : Temp. rise of resistor)
- You can select SSR about AC 90~480V, 10~150A

9. SSR 응용회로 Applied circuit of SSR

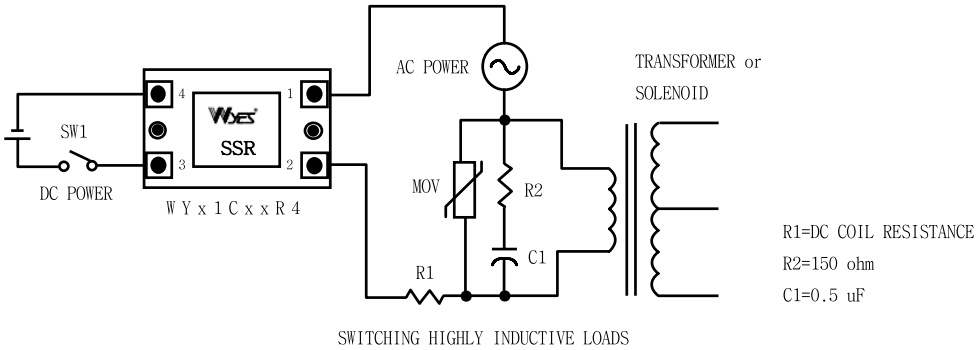


FIG 4

※ SSR = DC 입력형 (WYx1CxxR4)

9 - 6. 단상 SSR을 이용한 위상제어 (Phase Angle Control) 회로

- 전기장치의 AC 부하 전압을 제어하기 위하여 SCR이나 기타 부품을 활용하여 위상각제어(Phase Angle Control) 회로를 일반적으로 제작하였으나 SSR과 Control Unit을 이용하여 손쉽게 단상 전원을 위상제어 할 수 있으므로 간단한 회전기기 및 전기온도 제어 등에 응용하여 활용할 수 있습니다.
- Control Unit 종류 :
  · WYU - P180AC : INPUT DC 4 - 20mA or 1~5V
- SSR는 Random Type SSR, AC90 - 240V, 전류 10A - 150A까지 사용 가능 합니다.
- Control Unit의 1번과 3번 단자에 전압 및 전류신호를 인가하면 출력 전원의 위상각이 0-180 °변화되어 전압이 가변 됩니다.

※ 주의 : 삼상 전원을 이용한 단상 위상제어 회로 구성시는 반드시 R 또는 S,T의 부하 위상을 아래 그림5,6의 회로와 같이 유니트 전원과 상 동기 시켜 주어야 합니다.

SSR을 이용한 전력제어장치

9 - 7. 적용개요

일반적으로 Thyristor Unit는 앞서 설명해 드린 바와 같이 유니트 자체에 입력 신호제어 회로 및 전력소자를 하나의 함체내에 구성하고 이상 검출 및 전력제어 회로를 구성하므로 사용상 편리하고 히터 및 AC 제어에 많이 이용하고 있습니다. 그러나 Thyristor Unit는 이용하는 기능에 따라 가격이 고가인 것이 단점입니다. (주) 운영에서는 SSR 전문 생산 업체로서 간단한 AC 전력제어장치를 SSR와 제어 유니트를 이용하여 경제적인 가격으로 구성할 수 있도록 SSR용 전력제어 유니트를 생산하고 있습니다.

9 - 8. 제어 유니트 기능 설명

- 4-20mA 및 1-5V 입력 전용 위상제어 유니트 : WYU-P180AC
· 본 장치는 위에서 설명한 WYU-P180A와 동일한 제어를 할 수 있으나 입력신호가 4~20mA 및1-5V 입력을 사용하여 주로 히터를 이용한 온도제어 FAN 속도제어 및 벨브제어등 피이드백 제어에 이용 할 수 있습니다.
· 사용SSR : 단상 WYG1C□□□R4,WYH1C□□□R4 (□ 전류표시)
· 응용회로도 : Page 249
- 4-20mA 및 1-5V 입력 전용 싸이클 제어 유니트 : WYU-P180TC
· 본 장치는 히터 전용 단상,삼상 공용 싸이클제어 유니트로서 히터를 이용한 정밀한 온도제어를 실현 할 수 있으며 위상제어 에서는 단상 밖에 제어 할 수 없으나 단상, 삼상 공용이며 제어 시 불요복사 노이즈가 발생치 않고 직선성이 우수한 제어 유니트입니다.
· 사용 SSR : ZERO TYPE 단상 ,삼상 모든 SSR 사용가능.
응용 회로도 : Page 338

9 - 6. Phase angle control circuit by use of single phase SSR

- Phase angle control is produced by use of SCR or other components in order to control AC load voltage of electric device. It is easy to control phase angle by use of SSR and control unit, it can be applied and utilized for simple motor device and electric heater control.
- Type of control unit :
  · WYU - P180AC : INPUT DC 4 - 20 mA or 1~5V
- SSR is random type SSR : AC90-240V, range of apply current is 10A-150A.
- When voltage and electric current signal are transferred to the No.1 and 3 terminal of control unit, phase angle of output power varies to 0-180 degree and output voltage is varied.

※Caution: If it is desired to form a single-phase control circuit using 3-phase power supply, the load phase of R or S, T must be synchronized with the unit power supply as the circuits shown in the following figures 5 and 6

Power control equipment using SSR

9 - 7. Overview

- As described earlier, the thyristor unit normally holds the input signal control circuit and power element in one unit for the configuration of error detection and current control circuit. Thus, the unit can be conveniently used, and is commonly used for heater and AC control. However, thedisadvantage of the thyristor unit is the high price depending on the function available. Woonyoung Co., Ltd. specialized in the production of SSR, produces the power control unit for SSR to have the economic price using the control unit and SSR for simpleAC power controller.

9 - 8 . Control unit function explanation

- Phase control unit for 4-20mA and 1-5V input : WYU - P180AC
· While this unit is able to conduct the control which is the same as in the WYU-P180A described above, it is used to control temperature, FAN speed, valve and feedback with the heater mainly by means of 4 - 20mA and 1 - 5V input.
· SSR used: Single WYG1C□□□R4, WYH1C□□□R4 (□indicates current)
· Application circuit diagram : Page249
- Cycle control unit for 4-20mA and 1-5V input : WYU-P180TC
· This unit is able to control accurate temperature using the heater as a cycle control unit for both single phase and three phase for heater only. It can control only single phase in the phase control but it is used for both single phase and three phase without unnecessary reflection noise. The unit is excellent in its linearity.
· SSR used : All SSR including zero type single phase and three phase are available
· Application circuit diagram : Page338

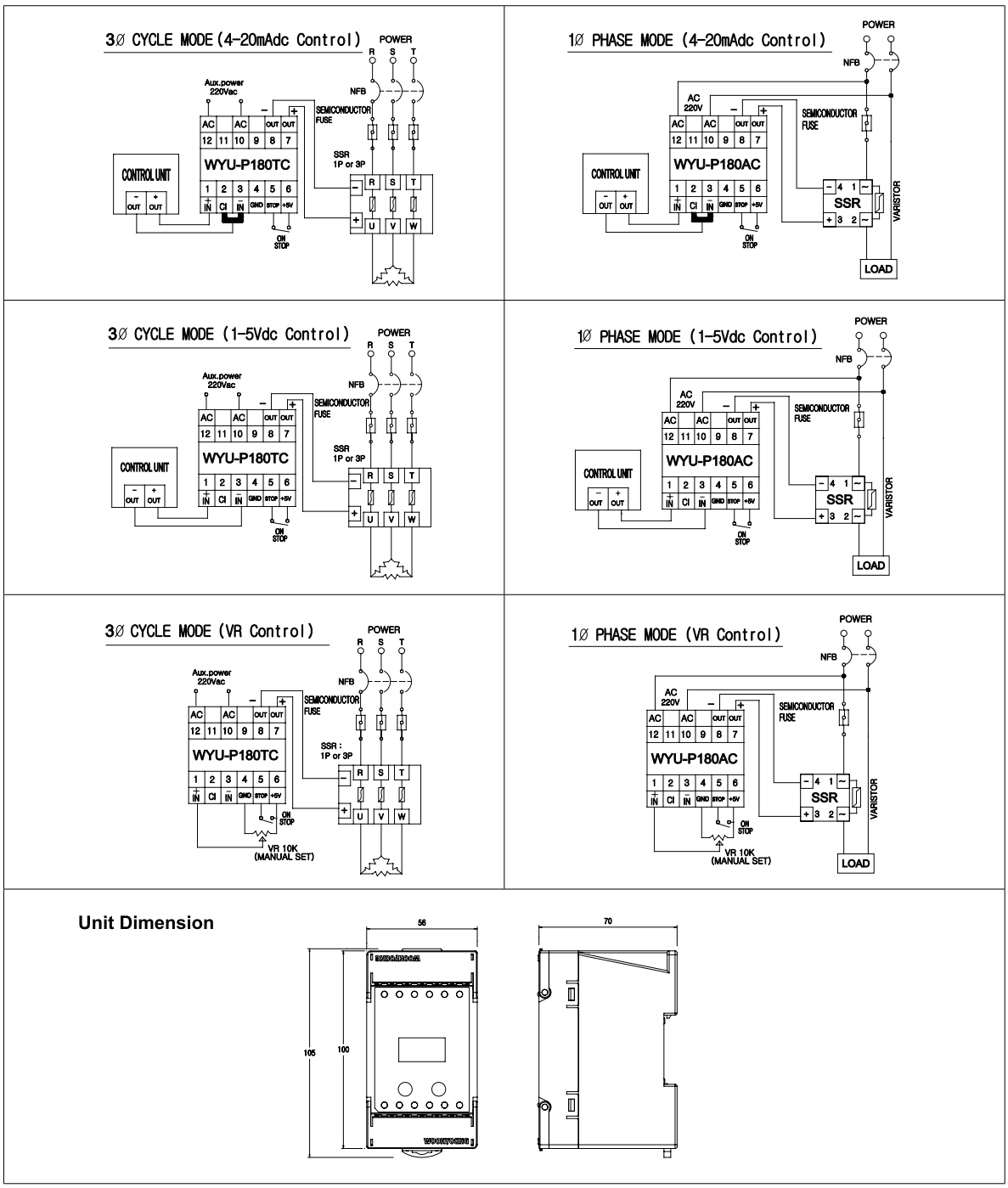
9. SSR 응용회로 Applied circuit of SSR

9 - 9. 제어 유니트 기능 및 특성표
Functions and Specifications of the Control Unit

Unit	Power Voltage	Input Signal	Control	Load Property	SSR Type	Output Signal
WYU－P180AC	AC220V±10%	·4 ～ 20mA ·1 － 5V ·VR(10K)	Phase angle control	·Inductive load ·Resistance load	Random type Single phase type	DC12V pulse
WYU－P180TC	AC220V±10%		Zero Cycle control	·Resistance load	Zero closs type Single Three phase	DC12V pulse

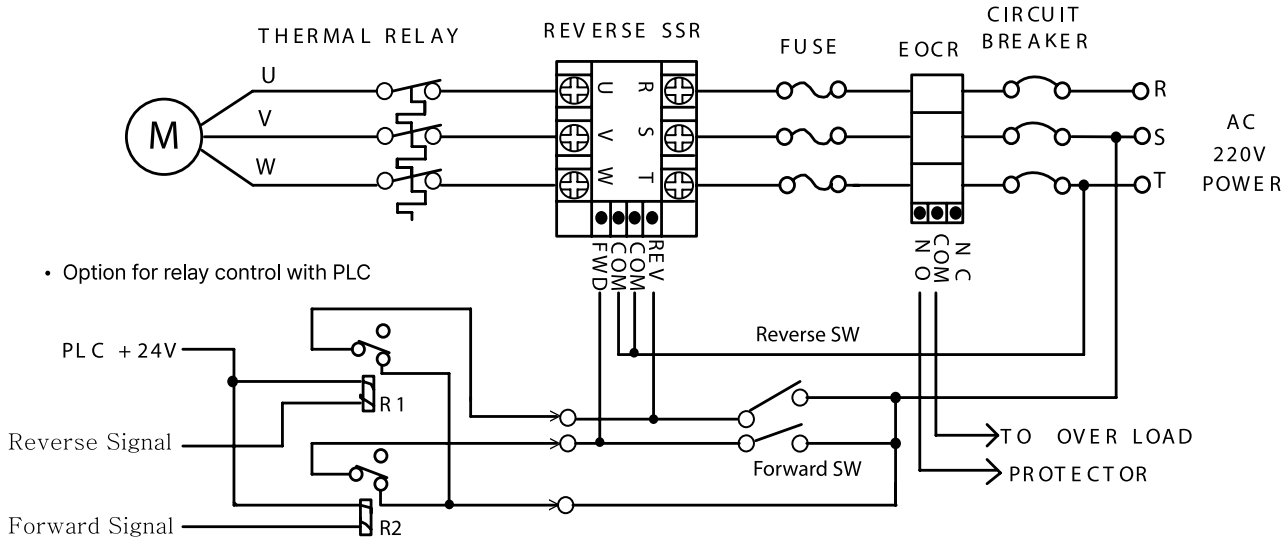
9 - 10. SSR 응용 회로도

180TC(3Ø) 180AC(1Ø)

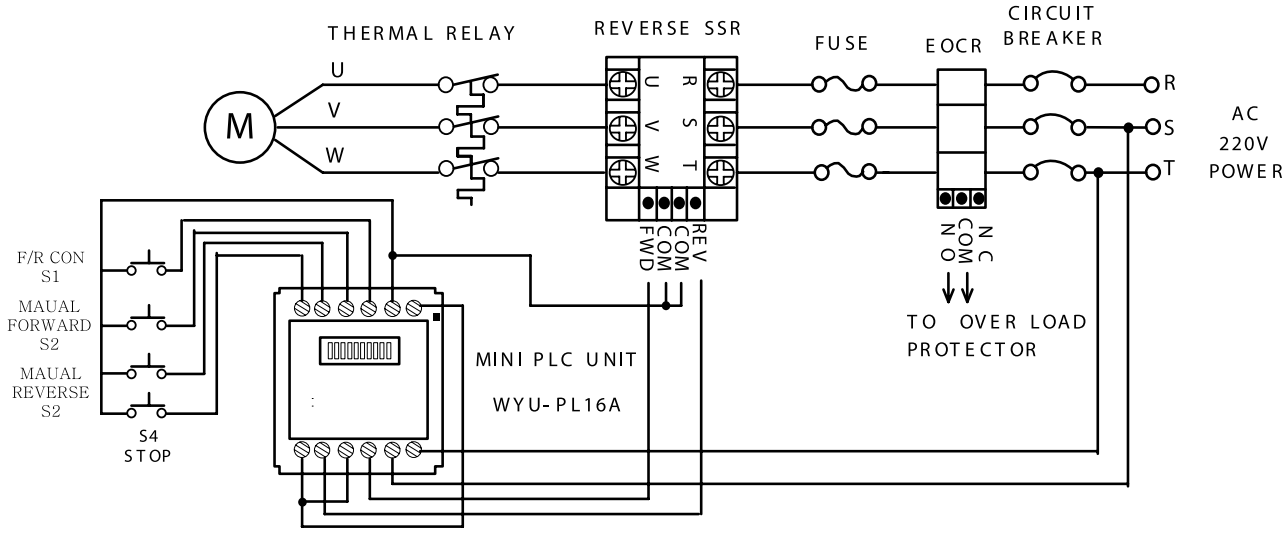


9. SSR 응용회로 Applied circuit of SSR

9 - 11. 삼상 Motor 정, 역 (Reversing)회로 (Forward and reverse circuit of three phased motor)
1. AC Input (WY3G (H) 2PC □ □ R/Z40)



2. DC INPUT (WY3G (H) 2PC □ □ R/Z4)
- MINI PLC UNIT WYU-PL16A (Program No. P11 Motor Forward and Reverse Control)

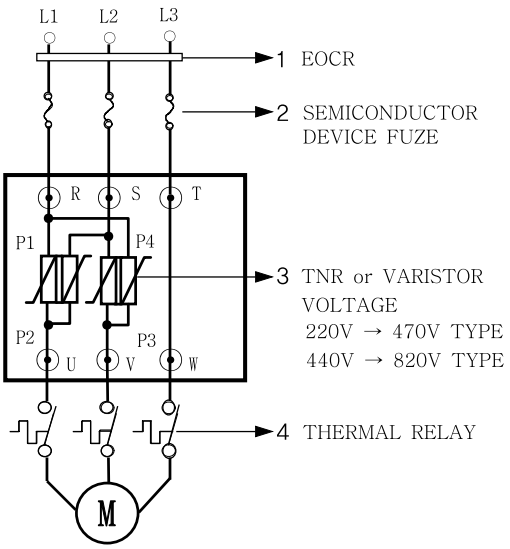


(1) 기존 정역 SSR 의 불합리한 점을 개선하여 정,역 운전 시 Interval Time이 없어도 SSR 이 손상되지 않도록 내부에 Dead Time회로를 추가하여 개선하였음. (PLC 로 입력을 바로 설정할 수 있음)
(2) 기존 정역 SSR 은 DC용으로만 국한되었지만 AC용도 개발되었으므로 사용자가 폭넓게 SSR을 선정하여 사용할 수 가 있다.
(3) 정역 SSR의 모델이 WY3G(H)2PC xxR4 인 경우에는 입력이 DC 이므로 SSR의 입력에 DC 전원을 인가 해야 한다.
(4) SSR Dead - Time : 1Cycle (0.016초) - 내장형
·SSR 용량 : 모터정격의 5~10배(부하에따라달라질수있음)
·MCCB : 모터 정격의 3배
·Fuse(반도체 휴즈) : SSR 정격전류의 100%
·열동형 계전기 (SRH Type) : 모터 정격전류의 100% (600% 2초)

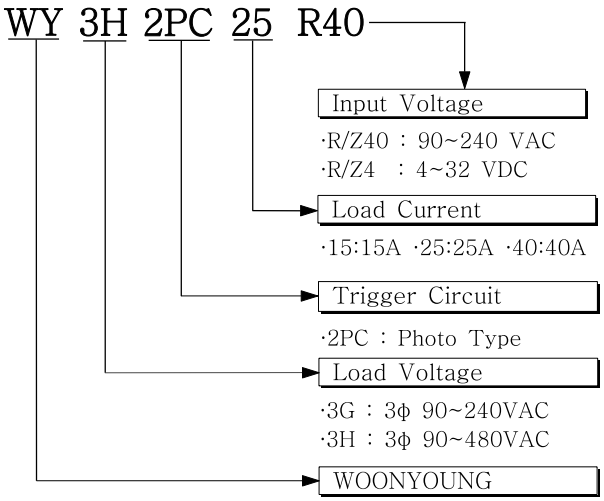
(1) Improved irrational exiating of forward and reverse SSR. add dead time control circuit inside of SSR for SSR protection when it's without interval time between forward and reverse operating.
(from PLC unit output directly applied to SSR input available by PLC unit user)
(2) Existing forward and reverse SSR was only controled by DC control input signal. but user can do comprehensive selection of SSR because it was developed by AC control input signal type SSR.
(3) if 4 last number of model number WY3G(H)2PCxxR/Z4. must have DC control input signal applied in SSR input
· SSR dead time : 1Hz(0.016s) - internal type
· SSR capacity : 5～10 times of motor rating(can depend on load)
· MCCB : 3 times of motor rating
· FUSE(semiconductor type) : 100% of SSR rating current
· Thermal relay (SRH type) : 100%(600% 2s) of motor rating current

9. SSR 응용회로 Applied circuit of SSR

Forward and Reveres SSR Protection

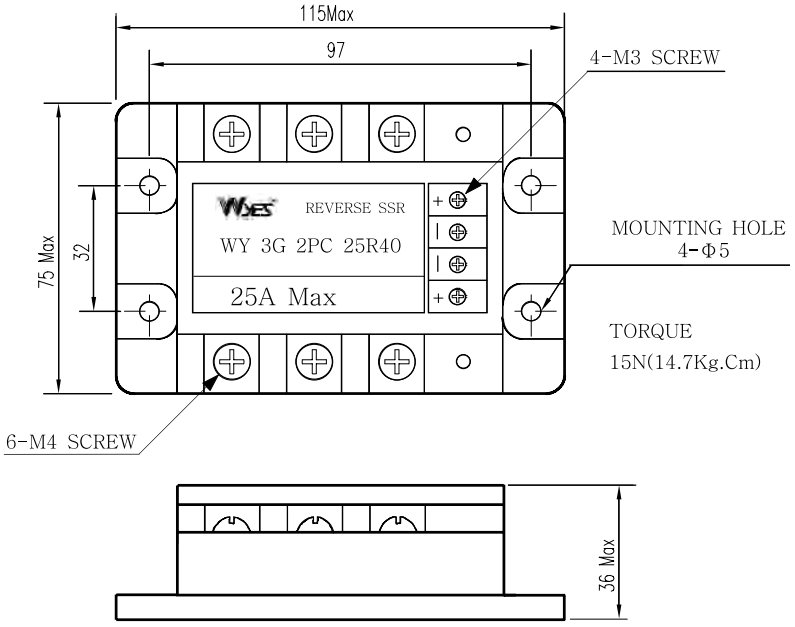


Forward and Reveres SSR Model Part



Dimension

[UNIT : mm]



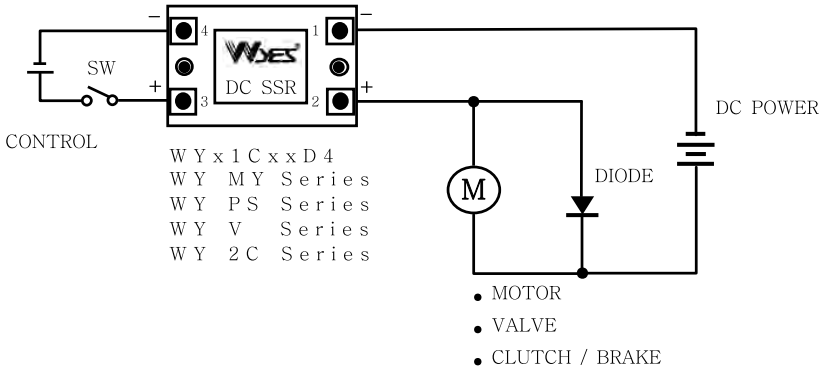
9. SSR 응용회로 Applied circuit of SSR

9 - 12. DC SSR 을 이용한 Motor 및 벨브제어

- 인덕턴스 부하에서는 역기전력을 흡수하는 보호 Diode 를 연결하여야 합니다.
- 사용가능한 SSR은 AC 90~480V, 10~150A 이내에서 선택할 수 있습니다.
- DC Motor 및 DC 제어장치에 사용가능 합니다.

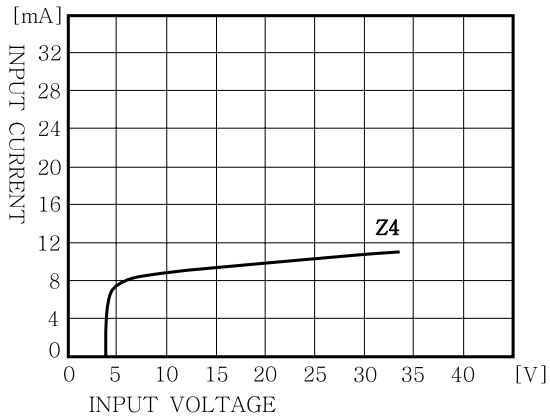
9 - 12. Control motor and valve by DC SSR

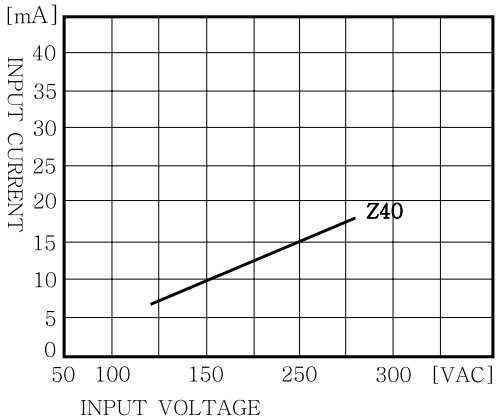
- Protective diode which absorbs reverse eletromotive force must be connected at inductive lode
- You can select SSR about AC 90~480V, 10~150A
- It can be used for DC motor and DC control device



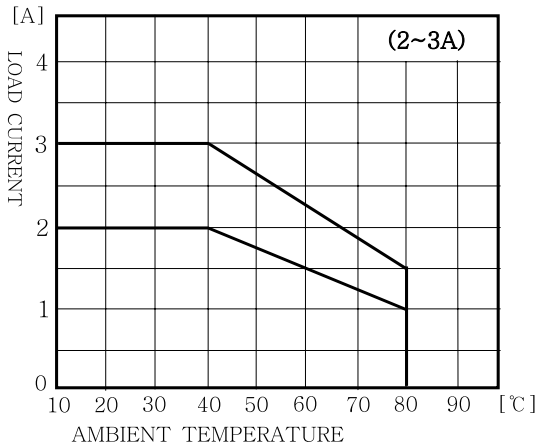
10. SSR Characteristic Curves

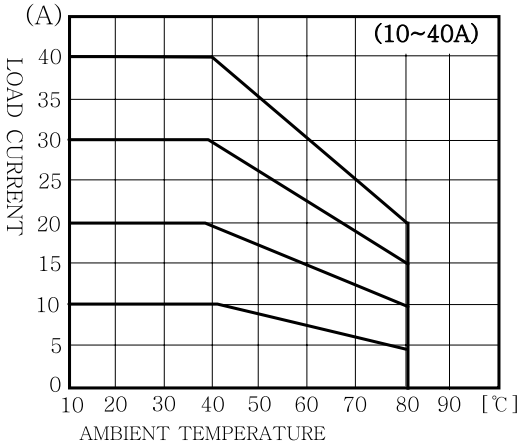
Input voltage vs current

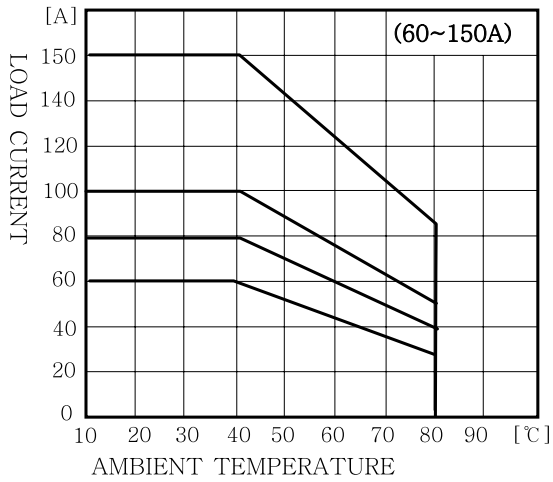




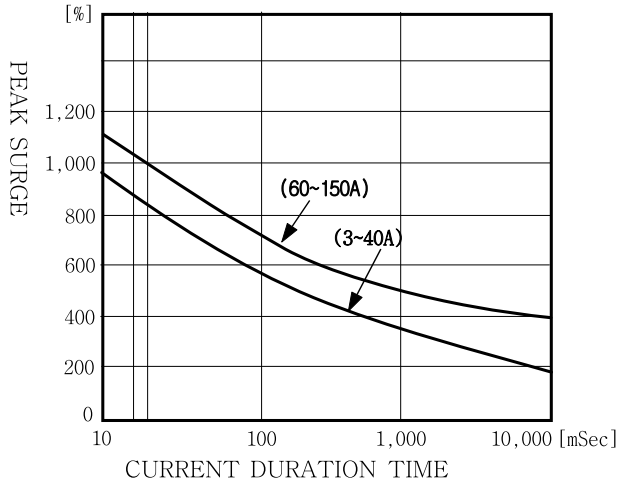
Maximum Allowable Current vs Ambient Temperature







Surge Current Duration



11. 일반형 SSR UL, cUL 인증 제품 적용규격 Certificate for applicable UL and cUL std.

- UL 508 Standard.
- 당사의 UL , cUL 인증된 SSR 전제품은 Pollution Degree 2에 해당합니다.

- All our SSR products are certified by UL and cUL, and the products fall under the category of pollution degree 2.

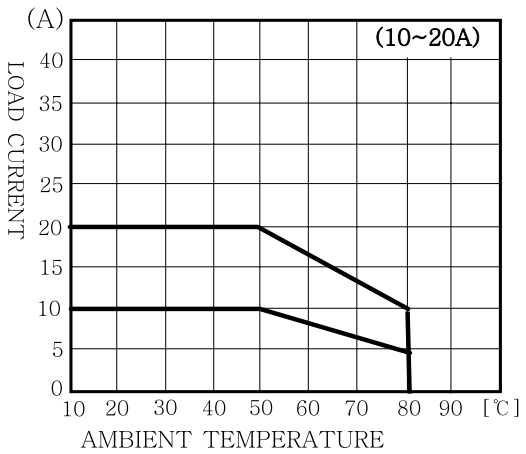
11-1. 인증 모델 및 적용 규격 (Listed model and ratings)

MODEL	RATED VOLTAGE	RATED CURRENT	HEAT SINK TYPE	Surround Air Temperature Curve
WYG1C10Z4	240V	10A	HS-A1010	A
WYG1C20Z4		20A	HS-A2020	A
WYG1C30Z4		30A	HS-A3040	B
WYG1C40Z4		40A	HS-A3040	B
WYH1C10Z4	480V	10A	HS-A1010	A
WYH1C20Z4		20A	HS-A2020	A
WYH1C30Z4		30A	HS-A3040	B
WYH1C40Z4		40A	HS-A3040	B
WY3G3C10Z4	240V	10A	H3M-80	A
WY3G3C20Z4		20A	H3M-80	A
WY3G3C30Z4		30A	H3M-110 W/FAN*	B
WY3G3C40Z4		40A	H3M-140 W/FAN*	B
WY3H3C10Z4	480V	10A	H3M-80	A
WY3H3C20Z4		20A	H3M-80	A
WY3H3C30Z4		30A	H3M-110 W/FAN*	B
WY3H3C40Z4		40A	H3M-140 W/FAN*	B

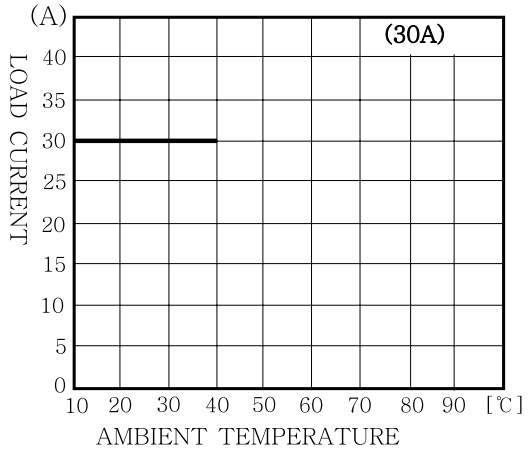
※ FAN : NMB-MATC3615KL-04W-B50)or equivalent, 92 X 92 X 38L 76.2CFM

11-2. Surround Air Temperature Curve

A - Curve



B - Curve



SSR 모델설명 SSR Model Number Explanation

SSR 모델설명 (SSR Model Number Explanation)

WY P 1C 10 Z 4 X

WY — WOONYOUNG

P — SSR Type

- P : PCB Type
- PS : PCB Type (W / LED)
- SC : Socket Type
- PM : HIC PCB Type
- GA : Ultra Small Socket Type
- GB : Small Socket Type
- MY : PIN Socket Type (Similar relay socket)
- LY : PIN Socket Type (Similar relay socket)
- G : 1Phase 250V (gereral type)
- H : 1Phase 450V (high voltage type)
- NG : 1Phase 250V (standard type)
- NH : 1Phase 450V (standard high voltage type)
- MG : 1Phase 250V (modul type)
- MH : 1Phase 450V (modul high voltage type)
- MS : DC Modul type
- S : DC general type
- L : SLIM type
- R : Channel type
- FM : 방열판 일체형 (heat sink type)
- F : 방열판 일체형 (heat sink type)
- 3G : 3Phase 250V
- 3H : 3Phase 450V
- N3G : 3Phase 250V (standard type)
- N3H : 3Phase 450V (standard high voltage type)
- L3G : 3Phase 250V (economy type)
- L3H : 3Phase 450V (economy high voltage type)
- VG : 1Phase 250V (heat sink type)
- VH : 1Phase 450V (heat sink high voltage type)
- TG : 온도제어용 SSR (AC 220V)
- TH : 온도제어용 SSR (AC 440V)

1C — SSR Type

- 1C : 1 Contact(1Phase)
- 2C : 2 Contact(1×2C)
- 4C : 4 Contact(1×4C)
- 2PC : 정(Forward), 역(Reverse)-3Phase
- 3C : 3 Circuit(3Phase)

10 — Load voltage and Current

DC type(D, V type) — Load voltage current

- 05 : 50V
- 06 : 60V
- 1 : 100V
- 2 : 200V
- 5 : 500V

AC type (Z, R type) — Load Current

- 005 : 0.5A
- 01 : 1/1.2/1.5A
- 02 : 1.8/2A
- 03 : 3A
- 05 : 5A
- 10 : 10A
- 15 : 15A
- 20 : 20A
- 30 : 30A
- 40 : 40A
- 50 : 50A
- 60 : 60A
- 70 : 70A
- 80 : 80A
- 100 : 100A
- 150 : 150A
- 200 : 200A
- 300 : 300A
- 400 : 400A

※ 400A 이상은 주문제작

※ More than 400A : Oder made

Z — Operating mode

- Z : AC Zero cross (Resistive load)
- R : AC Random cross (Inductive load)
- D : DC Load
- V : AC/DC겸용 (Nonpolarity)

4 — Control input voltage

- 4 : DC 4~32V
- 40 : AC 90~240V

X — Option

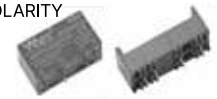
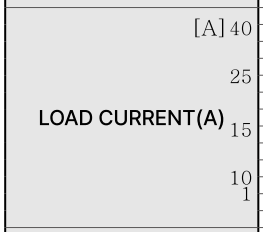
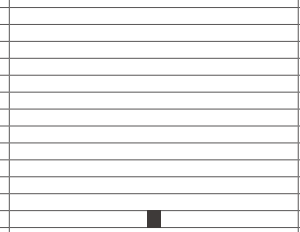
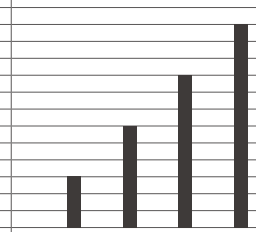
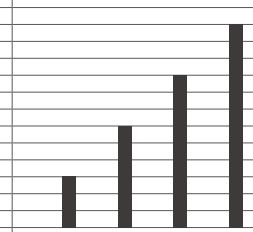
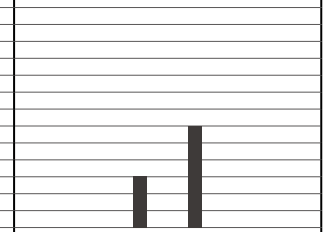
B : B Contact Type

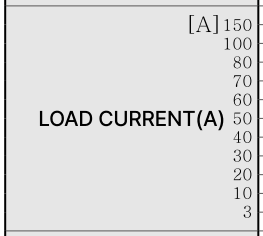
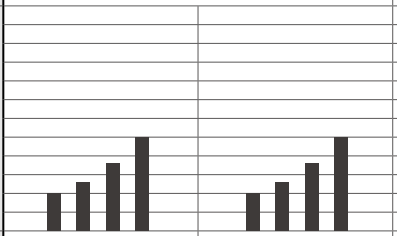
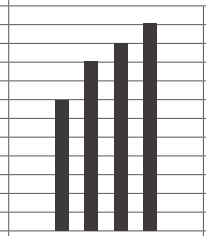
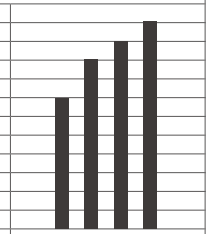
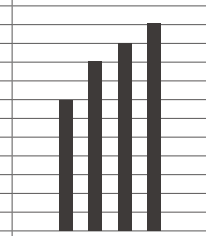
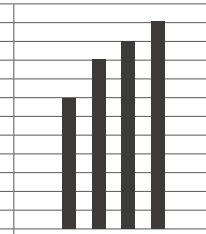
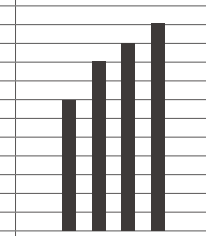
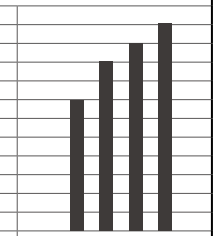
1Ø-AC TYPE SSR

TYPE	PM1C02Z4	PM1C03Z4	P1C03Z4	PS1C03Z4	SC1C03Z4	GA1C01Z4	GB1C02Z4
CURRENT (A)	2	3	3	3	3	1.2	2
CERTIFICATE	CE	CE	CE	CE	CE	CE	CE
PICTURE	PCB TYPE	PCB TYPE	PCB TYPE	PCB TYPE	SOCKET TYPE	SOCKET TYPE	SOCKET TYPE DIN SOCKEET TYPE
LED LAMP	NO	NO	NO	YES	YES	YES	YES
LOAD CURRENT(A)	[A] 5 / 3 / 1						
LOAD VOLTAGE	90~240V	90~240V	90~240V	90~240V	90~240V	90~240V	90~240V
INPUT VOLTAGE	4~32VDC	4~32VDC	4~32VDC	4~32VDC	4~32VDC	4~32VDC	4~32VDC
PAGE	226	226	230	230	231	227	229

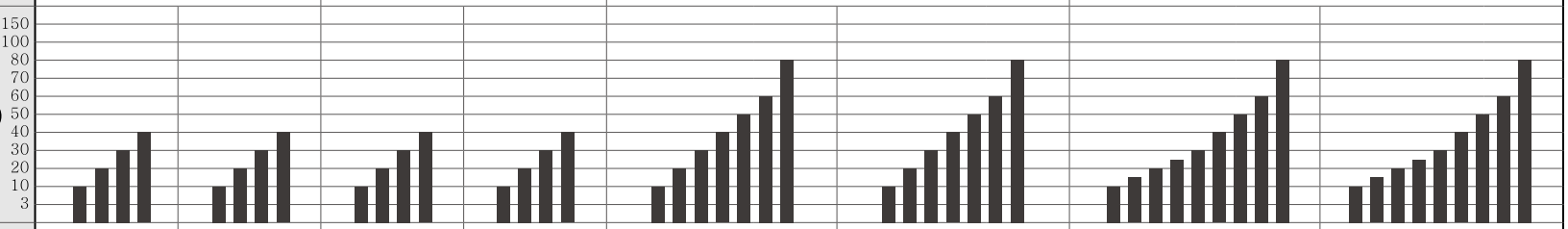
TYPE	MY1C 03Z4/40	MY1C 201V4	MY2C 01Z4/40	LY1C 03Z4/40	GA2C01Z4	GA4C01Z4	GB4C02Z4	G1C/H1C □□ Z4 G1C/H1C □□ R4	G1C/H1C □□ Z40 G1C/H1C □□ R40	NG1C □□ Z4	NH1C □□ Z40
CURRENT (A)	3	1	1	1	1.2	1.2	2	10/20/30/40/50/60/80	10/20/30/40/50/60/80	10/15/25/40/50/60/80	10/15/25/40/50/60/80
CERTIFICATE	TÜV CE	TÜV CE	CE	CE	CE	CE	CE	cULus CE	CE	cULus CE	CE
PICTURE	DIN RAIL			DIN RAIL	DIN RAIL	DIN RAIL	DIN RAIL				
LED LAMP	YES			YES	YES	YES	YES	YES		YES	
LOAD CURRENT(A)	[A] 80 / 70 / 60 / 50 / 40 / 30 / 20 / 10 / 3										
LOAD VOLTAGE	90~240VAC	5~240 AC/DC 겸용	90~240VAC	90~240VAC	90~240VAC	90~240VAC	90~240VAC	90~240VAC / 90~480VAC	90~240VAC / 90~480VAC	90~240VAC	90~480VAC
INPUT VOLTAGE	4~32VDC/ 90~240VAC	4~32VDC	4~32VDC/ 90~240VAC	4~32VDC/ 90~240VAC	4~32VDC	4~32VDC	4~32VDC	4~32VDC	90~240VAC	4~32VDC	90~240VAC
PAGE	234	235	236	237	227	228	229	242	242	240	241

1Ø-AC TYPE SSR

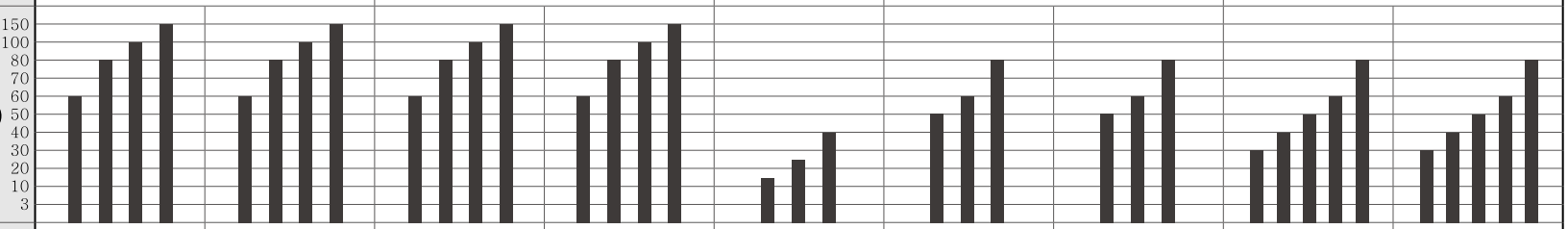
TYPE	SC1C201V4	R1C01Z4/Z40 RH1C01Z4/Z40	LG1C □□ Z4, 40	LH1C □□ Z4, 40	VG1C □□ Z4, R4 VH1C □□ Z4, R4
CURRENT (A)	1	1	10/15/25/40	10/15/25/40	10/15
CERTIFICATE	CE	CE	CE	CE	CE
PICTURE	NONPOLARITY  SOCKET	DIN RAIL	SLIM TYPE	SLIM TYPE	SLIM TYPE
LED LAMP	YES	YES	YES	YES	YES
LOAD CURRENT(A)					
LOAD VOLTAGE	AC/DC 5~240V(AV/DC 겸용)	90~240VAC / 90~480VAC	90~240VAC	90~480VAC	90~240VAC, 90~480VAC
INPUT VOLTAGE	4~32VDC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC
PAGE	231	232	238 / 239	238 / 239	244 / 245

TYPE	MG1C □□ Z4, 40 MG1C □□ R4, 40	MH1C □□ Z4, 40 MH1C □□ R4, 40	NMG1C □□□ Z4 NMG1C □□□ R4	NMG1C □□□ Z40 NMG1C □□□ R40	NMH1C □□□ Z4 NMH1C □□□ R4	NMH1C □□□ Z40 NMH1C □□□ R40	FMH1C □□□ Z4 FMH1C □□□ R4	FMH1C □□□ Z40 FMH1C □□□ R40
CURRENT (A)	10/15/25/40	10/15/25/40	50/70/90/110/130/160	50/70/90/110/130/160	50/70/90/110/130/160	50/70/90/110/130/160	60/80/100/150	60/80/100/150
CERTIFICATE	CE	CE	CE	CE	CE	CE	CE	CE
PICTURE	DIN RAIL TYPE							
LED LAMP	YES		YES		YES		YES	
LOAD CURRENT(A)								
LOAD VOLTAGE	90~240VAC	90~480VAC	90~240VAC	90~240VAC	90~480VAC	90~480VAC	90~480VAC	90~480VAC
INPUT VOLTAGE	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC	90~240VAC	4~32VDC	90~240VAC	4~32VDC	90~240VAC
PAGE	246 / 247	248 / 249	250	251	252	253	254	255

3Ø-AC 부하형 SSR (3Ø-AC SOLID STATE RELAY)

TYPE	L3G3C □□ Z4 L3G3C □□ R4	L3G3C □□ Z40 L3G3C □□ R40	L3H3C □□ Z4 L3H3C □□ R4	L3H3C □□ Z40 L3H3C □□ R40	3G3C □□ Z4 3G3C □□ Z40 3G3C □□ R4, 40	3H3C □□ Z4 3H3C □□ Z40 3H3C □□ R4, 40	N3G3C □□ Z4 N3G3C □□ Z40 N3G3C □□ R4, 40	N3H3C □□ Z4 N3H3C □□ Z40 N3H3C □□ R4, 40
CURRENT (A)	10/15/25/40	10/15/25/40	10/15/25/40	10/15/25/40	10/20/30/40/50/60/80	10/20/30/40/50/60/80	10/15/20/25/30/ 40/50/60/80	10/15/20/25/30/ 40/50/60/80
CERTIFICATE	CE	CE	CE	CE				
PICTURE								
LED LAMP	YES		YES		YES		YES	
LOAD CURRENT(A)								
LOAD VOLTAGE	90~240VAC	90~240VAC	90~480VAC	90~480VAC	90~240VAC	90~480VAC	90~240VAC	90~480VAC
INPUT VOLTAGE	4~32VDC	90~240VAC	4~32VDC	90~240VAC	4~32VDC, 90~240VAC	4~32VDC, 90~240VAC	4~32VDC, 90~240VAC	4~32VDC, 90~240VAC
PAGE	260	260	261	261	262	263	258	259

3Ø-AC 부하 방열판일체형 SSR (3Ø-AC SOLID STATE RELAY W/Heat sink)

TYPE	FM3G3C □□□ Z4 FM3G3C □□□ ZR	FM3G3C □□□ Z40 FM3G3C □□□ ZR0	FM3H3C □□□ Z4 FM3H3C □□□ ZR	FM3H3C □□□ Z40 FM3H3C □□□ ZR0	3G2PC □□ R4, 40 3H2PC □□ R4, 40	FG1C □□ Z4, 40 FG1C □□ R4, 40	FH1C □□ Z4, 40 FH1C □□ R4, 40	F3G3C □□ Z4, 40 F3G3C □□ R4, 40	F3H3C □□ Z4, 40 F3G3C □□ R4, 40
CURRENT (A)	60/80/100/150	60/80/100/150	60/80/100/150	60/80/100/150	15/25/40	50/60/80	50/60/80	30/40/50/60/80	30/40/50/60/80
CERTIFICATE	CE	CE	CE	CE	CE	CE	CE	CE	CE
PICTURE									
LED LAMP	YES		YES		YES	YES		YES	
LOAD CURRENT(A)									
LOAD VOLTAGE	90~240VAC	90~240VAC	90~480VAC	90~480VAC	90~240VAC	90~240VAC	90~480VAC	90~240VAC	90~480VAC
INPUT VOLTAGE	4~32VDC	90~240VAC	4~32VDC	90~240VAC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC	4~32VDC / 90~240VAC
PAGE	264	265	266	267	272 / 273	102	103	104	105

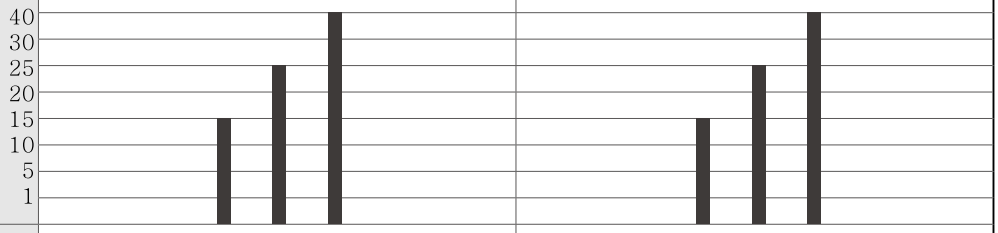
1Ø-DC 부하형 SSR (1Ø DC SOLID STATE RELAY)

TYPE	GA1C061/101 /2005D4	GB1C062/102 /201D4	GA2C061/101 /205D4	GA4C061/101 /205D4	GB4C062/102 /201D4	PS1C203D4 PS1C503D4	SC1C0510 / 105D4 SC1C203 / 501D4	R1C0310 / 0505D4 R1C103 / 201 /5005D4	PM1C203D4
CURRENT (A)	1.5/1.0/0.5	2.0/1.8/1.5	1.5/1.0/0.5	1.5/1.0/0.5	2.0/1.8/1.5	3	10/5/3/1	10/5/3/1/0.5	3
CERTIFICATE	CE	CE	CE	CE	CE	CE	CE	CE	CE
PICTURE									
LED LAMP	YES	YES	YES	YES	YES	YES	YES	YES	NO
LOAD CURRENT(A)	[A] 10 / 5 / 3 / 2 / 1								
LOAD VOLTAGE	60/100/200VDC		60/100/200VDC			200/500VDC	50/100/200/500VDC	30/50/100/200/500VDC	200VDC
INPUT VOLTAGE	4~32VDC		4~32VDC			4~32VDC	4~32VDC	4~32VDC	4~32VDC
PAGE	283	285	283	284	285	286	287	288	282

TYPE	MY1C203D4	MY2C201D4	LY1C203D4	S1C2 □□ D4	H1C05 □□ D4	MS1C □□□□ D4	FMH1C5 □□ D4	FMH1C5 □□□ D4	FMH1C12 □□□ D4
CURRENT (A)	3	1	3	5/10/20/30/40	5/10/20	5/10/20/30/40	50/75	100/200	300/400
CERTIFICATE	TÜV CE	TÜV CE	CE	CE	CE	CE	CE	CE	CE
PICTURE	DIN RAIL		DIN RAIL						
LED LAMP	YES			YES	YES	YES	YES		
LOAD CURRENT(A)	[A] 400 / 300 / 200 / 100 / 75 / 50 / 40 / 30 / 20 / 10 / 5 / 1								
LOAD VOLTAGE	200VDC			10~200VDC	10~500VDC	50/100/200/500VDC	10~500VDC	10~500VDC	10~200VDC
INPUT VOLTAGE	4~32VDC			4~32VDC	4~32VDC	4~32VDC	4~32VDC	4~32VDC	4~32VDC
PAGE	289		290	291	292	293	297		

SSR 모델설명 SSR Model Number Explanation

AC/DC 1Phase "B" Contact SSR (B 접점형)

TYPE	WYG1C15/25/40Z4B	WYH1C15/25/40Z4B
CURRENT (A)	15/25/40	15/25/40
PICTURE	"B" CONTACT	"B" CONTACT
LED LAMP	YES	YES
LOAD CURRENT(A)		
LOAD VOLTAGE	90 ~ 240VAC	90 ~ 480VAC
INPUT VOLTAGE	4 ~ 32VDC / 90 ~ 240VAC	4 ~ 32VDC / 90 ~ 240VAC
PAGE	90	91

제품별 Model 조견표 (Chart of type)

1Ø-Zero Cross Type SSR (AC 220V)

PCB / SOCKET TYPE

PCB Type

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYGA1C01Z4 CE	1	90~240	DC 4~32
WYPM1C02Z4 CE	2		
WYPM1C03Z4 CE	3		
WYPM1C05Z4 CE	5		
WYP1C03Z4 CE	3		
WYPS1C03Z4 CE	3		
WYSC1C201V4 (AC/DC) CE	1	5~240 AC/DC	

Socket Type

WYSC1C03Z4 CE	3	90~240	DC 4~32
WYMY1C03Z4 CE	3	90~240	DC 4~32
WYMY1C03Z40 CE	3	90~240	AC 4~32
WYMY1C201V4 (AC/DC) CE	1	50~240 AC/DC	DC 4~32
WYMY2C01Z4 CE	1 x 2	90~240	DC 4~32
WYMY2C01Z40 CE	1 x 2	90~240	AC 4~32
WYLY1C03Z4 CE	3	90~240	DC 4~32
WYLY1C03Z40 CE	3	90~240	90~240

DIN Rail Socket Type

WYGA2C01Z4 (DIN RAIL 소켓형) CE	1.5 x 2	90~240	DC 4~32
WYGA4C01Z4 (DIN RAIL 소켓형) CE	1.5 x 4	90~240	DC 4~32
WYGB4C02Z4 (DIN RAIL 소켓형) CE	2.0 x 4	90~240	DC 4~32

제품별 Model 조견표 (Chart of type)

● 1Ø-Zero Cross Type SSR (AC 220V)

1Ø ZERO CROSS TYPE

1Ø 일반형 (General type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYG1C10Z4	10	90~240	DC 4~32
WYG1C20Z4	20		
WYG1C30Z4	30		
WYG1C40Z4	40		
WYG1C50/60/80Z4	50/60/80		
WYG1C10Z40	10	90~240	AC 90~240
WYG1C20Z40	20		
WYG1C30Z40	30		
WYG1C40Z40	40		
WYG1C50/60/80Z40	50/60/80		

1Ø 표준형 (Standard type)

WYNG1C10Z4	10	90~240	DC 4~32
WYNG1C15Z4	15		
WYNG1C25Z4	25		
WYNG1C40Z4	40		
WYNG1C50Z4	50		
WYNG1C60Z4	60		
WYNG1C80Z4	80		

1Ø Channel type

WYR1C01Z4	1	90~240	DC 4~32
WYR1C01Z40	1		AC 90~240

1Ø 경제형 (Economy type)

WYLG1C10Z4	10	90~240	DC 4~32
WYLG1C15Z4	15		
WYLG1C25Z4	25		
WYLG1C40Z4	40		
WYLG1C10Z40	10	90~240	DC 90~240
WYLG1C15Z40	15		
WYLG1C25Z40	25		
WYLG1C40Z40	40		

1Ø Slim type

WYVG1C10Z4	10	90~240	DC 4~32
WYVG1C15Z4	15		

1Ø Module type

WYMG1C10Z4	10	90~240	DC 4~32
WYMG1C15Z4	15		
WYMG1C25Z4	25		
WYMG1C40Z4	40		
WYMG1C10Z40	10		AC 90~240
WYMG1C15Z40	15		
WYMG1C25Z40	25		
WYMG1C40Z40	40		

WYNMG1C50/70/90Z4	50/70/90	90~240	DC4~32
WYNMG1C50/70/90Z40	50/70/90		AC90~240
WYNMG1C110/130/160Z4	110/130/160		DC4~32
WYNMG1C110/130/160Z40	110/130/160		AC90~240

1Ø "B" Contact

WYG1C15/25/40Z4B	15/25/40	90~240	DC4~32
WYH1C15/25/40Z4B	15/25/40		AC90~240

제품별 Model 조견표 (Chart of type)

1Ø-Zero Cross Type SSR (AC 440V)

1Ø ZERO CROSS TYPE

1Ø 일반형 (General type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYH1C10Z4	10	90~480	DC 4~32
WYH1C20Z4	20		
WYH1C30Z4	30		
WYH1C40Z4	40		
WYH1C50/60/80Z4	50/60/80		
WYFMH1C60Z4	60		
WYFMH1C80Z4	80		
WYFMH1C0100Z4	100		
WYFMH1C150Z4	150		
WYH1C10Z40	10	90~480	DC 90~240
WYH1C20Z40	20		
WYH1C30Z40	30		
WYH1C40Z40	40		
WYH1C50/60/80Z40	50/60/80		
WYFMH1C60Z40	60		
WYFMH1C80Z40	80		
WYFMH1C100Z40	100		
WYFMH1C150Z40	150		

1Ø 표준형 (Standard type)

WYNH1C10/15/25/40Z4	10/15/25/40	90~480	DC 4~32
WYNH1C10/15/25/40Z40	10/15/25/40		AC 90~240
WYNH1C50/60/80Z4	50/60/80		DC 4~32
WYNH1C50/60/80Z40	50/60/80		AC 90~240

1Ø Channel type

WYR/RH1C01Z4	1	90~240	DC 4~32
WYR/RH1C01Z40	1		AC 90~240

1Ø 경제형 (Economy type)

WYLH1C10Z4	10	90~480	DC 4~32
WYLH1C15Z4	15		
WYLH1C25Z4	25		
WYLH1C40Z4	40		
WYLH1C10Z40	10		AC 90~240
WYLH1C15Z40	15		
WYLH1C25Z40	25		
WYLH1C40Z40	40		

1Ø Slim type

WYLH1C10Z4	10	90~480	DC 4~32
WYLH1C15Z4	15		

1Ø Module type

WYMH1C10Z4	10	90~480	DC 4~32
WYMH1C15Z4	15		
WYMH1C25Z4	25		
WYMH1C40Z4	40		
WYMH1C10Z40	10		AC 90~240
WYMH1C15Z40	15		
WYMH1C25Z40	25		
WYMH1C40Z40	40		
WYNMH1C50/70/90Z4	50/70/90	90~480	DC 4~32
WYNMH1C50/70/90Z40	50/70/90		AC 90~240
WYNMH1C110/130/160Z4	110/130/160		DC 4~32
WYNMH1C110/130/160Z40	110/130/160		AC 90~240

제품별 Model 조견표 (Chart of type)

1Ø-Random Cross Type SSR (AC 220&440V)

1Ø RANDOM CROSS TYPE

1Ø 일반형 (General type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYG1C10R4 CE	10	90~240	DC 4~32
WYG1C20R4 CE	20		
WYG1C30R4 CE	30		
WYG1C40R4 CE	40		
WYG1C50/60/80R4 CE	50/60/80		
WYH1C10R4 CE	10	90~480	DC 4~32
WYH1C20Z4 CE	20		
WYH1C30Z4 CE	30		
WYH1C40Z4 CE	40		
WYH1C50Z4 CE	50		
WYH1C60Z4 CE	60		
WYH1C80Z4 CE	80		

1Ø Module type

WYMG1C10R4 CE	10	90~240	DC 4~32
WYMG1C15R4 CE	15		
WYMG1C25R4 CE	25		
WYMG1C40R4 CE	40		
WYNMG1C50/70/90R4 CE	50/70/90		
WYNMG1C110/130/160R4 CE	110/130/160		
WYMH1C10R4/40 CE	10	90~480	AC 90~240
WYMH1C15R4/40 CE	15		
WYMH1C25R4/40 CE	25		
WYMH1C40R4/40 CE	40		
WYNMG1C50/70/90R4/40 CE	50/70/90		
WYNMG1C110/130/160R4/40 CE	110/130/160		

1Ø Channel type

WYRH1C01R4 CE	1	90~480	DC 4~32

1Ø Slim type

WYVG1C10R4 CE	10	90~240	4~32
WYVG1C15R4 CE	15		
WYVG1C25R4 CE	25	90~480	4~32
WYVG1C40R4 CE	40		

제품별 Model 조견표 (Chart of type)

3Ø-Zero Cross Type SSR (AC 220&440V)

3Ø ZERO CROSS TYPE

삼상경제형
(Economy Type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYL3G3C10Z4 CE	10	90~240	DC 4~32
WYL3G3C15Z4 CE	15		
WYL3G3C25Z4 CE	25		
WYL3G3C40Z4 CE	40		
WYL3G3C10Z40 CE	10	90~240	DC 90~240
WYL3G3C15Z40 CE	15		
WYL3G3C25Z40 CE	25		
WYL3G3C40Z40 CE	40		

삼상경제형
(Economy Type)

WYL3H3C10Z4 CE	10	90~48	DC 4~32
WYL3H3C15Z4 CE	15		
WYL3H3C25Z4 CE	25		
WYL3H3C40Z4 CE	40		
WYL3H3C10Z40 CE	10	90~480	AC 90~240
WYL3H3C15Z40 CE	15		
WYL3H3C25Z40 CE	25		
WYL3H3C40Z40 CE	40		

제품별 Model 조견표 (Chart of type)

3Ø-Zero Cross Type SSR (AC 220&440V)

3Ø ZERO CROSS TYPE

삼상일반형
(General Type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WY3G3C10Z4	10	90~240	DC 4~32
WY3G3C20Z4	20		
WY3G3C30Z4	30		
WY3G3C40Z4	40		
WY3G3C50Z4	50		
WY3G3C60Z4	60		
WY3G3C80Z4	80		
WYFM3G3C60Z4	60		
WYFM3G3C80Z4	80		
WYFM3G3C100Z4	100		
WYFM3G3C150Z4	150		

WY3G3C10Z40	10	90~240	DC 4~32
WY3G3C20Z40	20		
WY3G3C30Z40	30		
WY3G3C40Z40	40		
WY3G3C50Z40	50		
WY3G3C60Z40	60		
WY3G3C80Z40	80		
WYFM3G3C60Z40	60		
WYFM3G3C80Z40	80		
WYFM3G3C100Z40	100		
WYFM3G3C150Z40	150		

삼상일반형
(General Type)

WY3H3C10Z4	10	90~480	DC 4~32
WY3H3C20Z4	20		
WY3H3C30Z4	30		
WY3H3C40Z4	40		
WY3H3C50Z4	50		
WY3H3C60Z4	60		
WY3H3C80Z4	80		
WYFM3H3C60Z4	60		
WYFM3H3C80Z4	80		
WYFM3H3C100Z4	100		
WYFM3H3C150Z4	150		

WY3H3C10Z40	10	90~480	AC 90~240
WY3H3C20Z40	20		
WY3H3C30Z40	30		
WY3H3C40Z40	40		
WY3H3C50Z40	50		
WY3H3C60Z40	60		
WY3H3C80Z40	80		
WYFM3H3C60Z40	60		
WYFM3H3C80Z40	80		
WYFM3H3C100Z40	100		
WYFM3H3C150Z40	150		

제품별 Model 조견표 (Chart of type)

3Ø-Random Cross Type SSR (AC 220&440V)

3Ø RANDOM TYPE

삼상일반형
(General Type)

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WY3G3C10R4 CE	10	90~240	DC 4~32
WY3G3C20R4 CE	20		
WY3G3C30R4 CE	30		
WY3G3C40R4 CE	40		
WY3G3C50R4 CE	50		
WY3G3C60R4 CE	60		
WY3G3C80R4 CE	80		
WYFM3G3C60R4 CE	60		
WYFM3G3C80R4 CE	80		
WYFM3G3C100R4 CE	100		
WYFM3G3C150R4 CE	150		
WY3G3C10R40 CE	10	90~240	AC 90~240
WY3G3C20R40 CE	20		
WY3G3C30R40 CE	30		
WY3G3C40R40 CE	40		
WY3G3C50R40 CE	50		
WY3G3C60R40 CE	60		
WY3G3C80R40 CE	80		
WYFM3G3C60R40 CE	60		
WYFM3G3C80R40 CE	80		
WYFM3G3C100R40 CE	100		
WYFM3G3C150R40 CE	150		

삼상일반형
(General Type)

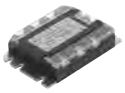
WY3H3C10R4 CE	10	90~480	DC 4~32
WY3H3C20R4 CE	20		
WY3H3C30R4 CE	30		
WY3H3C40R4 CE	40		
WY3H3C50R4 CE	50		
WY3H3C60R4 CE	60		
WY3H3C80R4 CE	80		
WYFM3H3C60R4 CE	60		
WYFM3H3C80R4 CE	80		
WYFM3H3C100R4 CE	100		
WYFM3H3C150R4 CE	150		
WY3H3C10R40 CE	10	90~480	AC 90~240
WY3H3C20R40 CE	20		
WY3H3C30R40 CE	30		
WY3H3C40R40 CE	40		
WY3H3C50R40 CE	50		
WY3H3C60R40 CE	60		
WY3H3C80R40 CE	80		
WYFM3H3C60R40 CE	60		
WYFM3H3C80R40 CE	80		
WYFM3H3C100R40 CE	100		
WYFM3H3C150R40 CE	150		

제품별 Model 조견표 (Chart of type)

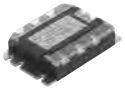
3Ø-Zero Cross Type SSR (AC 220&440V)

3Ø ZERO CROSS TYPE

삼상표준형
(Standard Type)

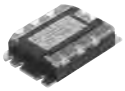


TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYN3G3C10Z4	10	90~240	DC 4~32
WYN3G3C15Z4	15		
WYN3G3C20Z4	20		
WYN3G3C25Z4	25		
WYN3G3C30Z4	30		
WYN3G3C40Z4	40		
WYN3G3C50Z4	50		
WYN3G3C60Z4	60		
WYN3G3C80Z4	80		

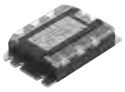


WYN3G3C10Z40	10	90~240	AC 90~240
WYN3G3C15Z40	15		
WYN3G3C20Z40	20		
WYN3G3C25Z40	25		
WYN3G3C30Z40	30		
WYN3G3C40Z40	40		
WYN3G3C50Z40	50		
WYN3G3C60Z40	60		
WYN3G3C80Z40	80		

삼상표준형
(Standard Type)



TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYN3H3C10Z4	10	90~480	DC 4~32
WYN3H3C15Z4	15		
WYN3H3C20Z4	20		
WYN3H3C25Z4	25		
WYN3H3C30Z4	30		
WYN3H3C40Z4	40		
WYN3H3C50Z4	50		
WYN3H3C60Z4	60		
WYN3H3C80Z4	80		



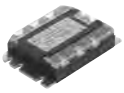
WYN3H3C10Z40	10	90~480	AC 90~240
WYN3H3C15Z40	15		
WYN3H3C20Z40	20		
WYN3H3C25Z40	25		
WYN3H3C30Z40	30		
WYN3H3C40Z40	40		
WYN3H3C50Z40	50		
WYN3H3C60Z40	60		
WYN3H3C80Z40	80		

제품별 Model 조견표 (Chart of type)

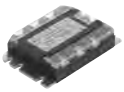
3Ø-Random Cross Type SSR (AC 220&440V)

3Ø RANDOM TYPE

삼상표준형
(Standard Type)

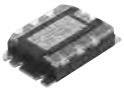


TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYN3G3C10R4 CE	10	90~240	DC 4~32
WYN3G3C15R4 CE	15		
WYN3G3C20R4 CE	20		
WYN3G3C25R4 CE	25		
WYN3G3C30R4 CE	30		
WYN3G3C40R4 CE	40		
WYN3G3C50R4 CE	50		
WYN3G3C60R4 CE	60		
WYN3G3C80R4 CE	80		

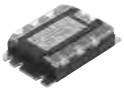


WYN3G3C10R40 CE	10	90~240	AC 90~240
WYN3G3C15R40 CE	15		
WYN3G3C20R40 CE	20		
WYN3G3C25R40 CE	25		
WYN3G3C30R40 CE	30		
WYN3G3C40R40 CE	40		
WYN3G3C50R40 CE	50		
WYN3G3C60R40 CE	60		
WYN3G3C80R40 CE	80		

삼상표준형
(Standard Type)



TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYN3H3C10R4 CE	10	90~480	DC 4~32
WYN3H3C15R4 CE	15		
WYN3H3C20R4 CE	20		
WYN3H3C25R4 CE	25		
WYN3H3C30R4 CE	30		
WYN3H3C40R4 CE	40		
WYN3H3C50R4 CE	50		
WYN3H3C60R4 CE	60		
WYN3H3C80R4 CE	80		



WYN3H3C10R40 CE	10	90~480	AC 90~240
WYN3H3C15R40 CE	15		
WYN3H3C20R40 CE	20		
WYN3H3C25R40 CE	25		
WYN3H3C30R40 CE	30		
WYN3H3C40R40 CE	40		
WYN3H3C50R40 CE	50		
WYN3H3C60R40 CE	60		
WYN3H3C80R40 CE	80		

제품별 Model 조견표 (Chart of type)

1Ø, 3Ø-방열판 일체형 SSR(Heat Sink Fan Built-in Type) AC 220&440V

FAN / HEATSINK- BUILT IN TYPE

FAN 부착 방열판 일체형
1Ø SSR / FAN / H-sink Type

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WYFG1C30Z4/R4 CE	30	90~240	DC 4~32
WYFG1C40Z4/R4 CE	40		
WYFG1C50Z4/R4 CE	50		
WYFG1C60Z4/R4 CE	60		
WYFG1C80Z4/R4 CE	80		
WYFG1C30Z4/R40 CE	30	90~240	AC 90~240
WYFG1C40Z4/R40 CE	40		
WYFG1C50Z4/R40 CE	50		
WYFG1C60Z4/R40 CE	60		
WYFG1C80Z4/R40 CE	80		
WYFH1C30Z4/R4 CE	30	90~480	DC 4~32
WYFH1C40Z4/R4 CE	40		
WYFH1C50Z4/R4 CE	50		
WYFH1C60Z4/R4 CE	60		
WYFH1C80Z4/R4 CE	80		
WYFH1C30Z4/R40 CE	30	90~480	DC 90~240
WYFH1C40Z4/R40 CE	40		
WYFH1C50Z4/R40 CE	50		
WYFH1C60Z4/R40 CE	60		
WYFH1C80Z4/R40 CE	80		

FAN 부착 방열판 일체형
3Ø SSR / FAN / H-sink Type

WYF3G3C30Z4/R4 CE	30	90~240	DC 4~32
WYF3G3C40Z4/R4 CE	40		
WYF3G3C50Z4/R4 CE	50		
WYF3G3C60Z4/R4 CE	60		
WYF3G3C80Z4/R4 CE	80		
WYF3G3C30Z40/R40 CE	30	90~240	AC 90~240
WYF3G3C40Z40/R40 CE	40		
WYF3G3C50Z40/R40 CE	50		
WYF3G3C60Z40/R40 CE	60		
WYF3G3C80Z40/R40 CE	80		
WYF3H3C30Z4/R4 CE	30	90~480	DC 4~32
WYF3H3C40Z4/R4 CE	40		
WYF3H3C50Z4/R4 CE	50		
WYF3H3C60Z4/R4 CE	60		
WYF3H3C80Z4/R4 CE	80		
WYF3H3C30Z40/R40 CE	30	90~480	AC 90~240
WYF3H3C40Z40/R40 CE	40		
WYF3H3C50Z40/R40 CE	50		
WYF3H3C60Z40/R40 CE	60		
WYF3H3C80Z40/R40 CE	80		

제품별 Model 조견표 (Chart of type)

3Ø-Motor 정(Forward), 역(Reverse) SSR (AC 220&440V)

(정)FORWARD ·(역)REVERSE TYPE

TYPE	CURRENT (A)	VOLTAGE (V – AC)	INPUT (V)
WY3G2PC15R4 CE	15	90~240	DC 4~32
WY3G2PC25R4 CE	25		
WY3G2PC40R4 CE	40		
WY3G2PC15R40 CE	15	90~240	AC 90~240
WY3G2PC25R40 CE	25		
WY3G2PC40R40 CE	40		
WY3H2PC15R4 CE	15	90~480	DC 4~32
WY3H2PC25R4 CE	25		
WY3H2PC40R4 CE	40		
WY3H2PC15R40 CE	15	90~480	AC 90~240
WY3H2PC25R40 CE	25		
WY3H2PC40R40 CE	40		

2극, 3극용(1Ø, 3Ø) 온도제어용 SSR(AC 220, 440V)

TEMP. CONTROL SSR(2극, 3극)

2극용 SSR

TYPE	CURRENT (A)	VOLTAGE (V-AC)	INPUT (V)
WYTG2C10/20/30/40Z4 S CE	10/20/30/40	90~240	DC 12~24
WYTG2C50/60/80Z4 S CE	50/60/80		
WYTH2C10/20/30/40Z4 S CE	10/20/30/40		
WYTH2C50/60/80Z4 S CE	50/60/80		

3극용 SSR

TYPE	CURRENT (A)	VOLTAGE (V-AC)	INPUT (V)
WYT3G3C10/20/30/40Z4 S CE	10/20/30/40	90~48	DC 12~24
WYT3G3C50/60/80Z4 S CE	50/60/80		
WYT3H3C10/20/30/40Z4 S CE	10/20/30/40		
WYT3H3C50/60/80Z4 S CE	50/60/80		

3Ø Motor Controller SSR

MOTOR CONTROL SSR

모터전용
(SSR for motors)

TYPE	CURRENT (A)	VOLTAGE (V-AC)	INPUT (V)
WYM2-2.2,3.7/5.5/7.5/11 CE	10/20/30/40	180~240	DC 4~32
WYM4-5.5/11/15/22 CE	10/20/30/40	90~480	

제품별 Model 조견표 (Chart of type)

DC Load Type SSR (DC 60~500V)

DC TYPE

DC PCB type

TYPE		CURRENT (A)	VOLTAGE (V – DC)	INPUT (V)
WYGA1C0615D4	CE	1.5	60	DC4~32
WYGA1C1012D4	CE	1.2	100	
WYGA1C2005D4	CE	0.5	200	
WYPM1C203D4	CE	3	200	
WYPM1C205D4	CE	5	200	
WYPS1C203D4	CE	3	200	
WYPS1C501D4	CE	1	500	

DC Socket type

MY TYPE LY TYPE

WYSC1C0510D4	CE	10	50	DC4~32
WYSC1C105D4	CE	5	100	
WYSC1C203D4	CE	3	200	
WYSC1C501D4	CE	1	500	
WYMY1C203D4	CE	3	200	
WYMY2C201D4	CE	1	200	
WYLY1C203D4	CE	3	200	

DIN Rail Socket type

WYGA2C061D4	CE	1.5	60	DC4~32
WYGA2C101D4	CE	1	100	
WYGA2C2005D4	CE	0.5	200	
WYGA4C061D4	CE	1.5	60	
WYGA4C101D4	CE	1	100	
WYGA4C2005D4	CE	0.5	200	
WYGB4C062D4	CE	2	60	
WYGB4C102D4	CE	1.8	100	
WYGB4C205D4	CE	1.5	200	

제품별 Model 조견표 (Chart of type)

DC Load Type SSR (DC 30~1200V)

DC TYPE

DC DIN Rail type

TYPE	CURRENT (A)	VOLTAGE (V – DC)	INPUT (V)
WYR1C0310D4 CE	10	30	DC 4~32
WYR1C0505D4 CE	5	50	
WYR1C103D4 CE	3	100	
WYR1C201D4 CE	1	200	
WYR1C5005D4 CE	0.5	500	

DC 200,500V

TYPE	CURRENT (A)	VOLTAGE (V – DC)	INPUT (V)
WYNSG1C205D4 CE	5	200	DC 4~32
WYNSG1C210D4 CE	10		
WYNSG1C220D4 CE	20		
WYNSG1C230D4 CE	30		
WYNSG1C240D4 CE	40		
WYNSH1C505D4 CE	5	500	
WYNSH1C510D4 CE	10		
WYNSH1C520D4 CE	20		

Heat sink Type 50, 500V

TYPE	CURRENT (A)	VOLTAGE (V – DC)	INPUT (V)
WYMS1C0505D4 CE	5	50	DC 4~32
WYMS1C0510D4 CE	10		
WYMS1C0520D4 CE	20		
WYMS1C0530D4 CE	30		
WYMS1C0540D4 CE	40		
WYMS1C105D4 CE	5	500	
WYMS1C110D4 CE	10		
WYMS1C120D4 CE	20		
WYMS1C130D4 CE	30		
WYMS1C140D4 CE	40		
WYMS1C205D4 CE	5	200	
WYMS1C210D4 CE	10		
WYMS1C220D4 CE	20		
WYMS1C505D4 CE	5	500	
WYMS1C510D4 CE	10		
WYMS1C520D4 CE	20		
WYMS1C530D4 CE	30		
WYMS1C540D4 CE	40		

Heat sink Type DC 500, 1200V

TYPE	CURRENT (A)	VOLTAGE (V – DC)	INPUT (V)
WYFMH1C550D4 CE	50	500	DC 4~32
WYFMH1C575D4 CE	75		
WYFMH1C5100D4 CE	100		
WYFMH1C5200D4 CE	200		
WYFMH1C12300D4 CE	300	1200	
WYFMH1C12400D4 CE	400		