



**10~1000A**

## **DC HIGH VOLTAGE EV RELAY**

**High Voltage DC System**

*Bi-directional switching device at 1500Vdc*





# YM Tech

(주)와이엠텍은 산업전기 및 전자분야의 핵심 컴포넌트를 설계, 제조, 공급하는 릴레이 전문 업체로, 1998년 설립된 이래, 직류 Relay와 Latch Relay, EV Relay, 특수분야 사업인 국방용 Relay 등 특수 제품을 개발, 공급하고 있으며, 기술 집약 기업인 이노비즈 기업으로 ISO9001 및 UL 등 각종 품질인증을 취득하였으며, 2006년 기술혁신경진대회 수상 및 2011년 우수중소기업 표창 등을 수상하였으며 2018년 IATF16949를 취득하여 자동차 부품 공급 체계를 구축하였다.

와이엠텍 EV Relay는 에너지 저장 시스템, 충전기 등 고전압 리튬전지를 핵심으로 하는 시스템의 안전성을 보장합니다.

YM Tech EV Relay는 세계 최초로 CCC인증을 받은 것은 물론, IEC CB, CE, UL, FCC를 등 국제 규격 인증을 획득하였습니다.

(주)와이엠텍은 전기 자동차, 충전기, 에너지 절감 장치, 태양광, 풍력, 군사 무기, 항공기 등의 직류 개폐기를 소형화, 경량화하며 고전압 차단 기술 연구를 거듭해 직류 개폐 장치의 선두주자로 나아갈 것 입니다.

환경을 생각하고, 인류를 생각한 기술!

모두를 편리하게, 그리고 건강하게 만드는 미래 기술입니다!

고객 가치 향상을 위한 새로운 미래 혁신! 와이엠텍이 열어가겠습니다!

YM Tech is specialized in DC high voltage relay. It designs, manufactures and supplies the core components for the electrical and electronics industries.

Founded in 1998, YM Tech has been developing and supplying DC Relay, Latch Relay, EV Relay and Military Purpose Relay, etc.

As technology-intensive Inno-Biz company, YM Tech has acquired various quality certifications such as ISO9001 and UL. Furthermore, it received 2006 Innovation Award, 2011 Excellent SME Biz Award and acquired IATF16949 auto parts plant certification in 2018, thereby demonstrating its advanced technology.

EV Relay is used in electric vehicles. To switch the battery power to safely, EV Relay is very important electrical component in electric vehicles.

Moreover, it ensures the safety of high-voltage lithium batteries such as battery energy storage systems and charging station for electric vehicles, etc. YM Tech's EV relay received CCC certification for the first time in the world and acquired IEC CB, CE, UL, FCC etc., thereby complying with all international standards.

YM Tech has reduced the size and weight of DC switching devices used for electric vehicles, charging systems, energy saving devices, solar power station, wind power station, military weapons and airplanes, etc.

Furthermore, YM Tech will become a leader in the field of DC switching devices through continued researches on the technologies for cutting off high-voltage.





Technology considering our environment and human race!

Future-oriented technology aims at enhancing convenience and health for everyone! .

DC HIGH VOLTAGE EV RELAY

# Product Approvals



▶ 해외규격 (Product Approvals)

Type	UL (E210800) 	CE,CB  	CCC 	Short circuit test (CE,CCC)	SCPD	Remark
EVR10	●	●	●	1KA	660GH 16A	CQC
EVR50	●	●	●	1KA	660GH 63A	CQC
EVR100	●	●	●	5KA	660GH 200A	CQC
EVR150	●	●	●	5KA	660GH 200A	CQC
EVR250	●	●	●	10KA	660GH 400A	CQC TUV-SUD
EVR400	●	●	●	5KA	660GH 500A	CQC TUV-SUD
EVR400-/B	●					
EVR600		●	●	6KA		CQC
EVH400	●	●	●	10kA		TUV-SUD
EVH600	●	●	●	10kA		TUV-SUD
EVH750	●	●	●	10kA		TUV-SUD
EVHB400	●	●	●	10kA		TUV-SUD
EVHB100	●	●	●	10kA		TUV-SUD
EVHB500	●	●	●	10kA		TUV-SUD
EVHB500H	●	●	●	10kA		TUV-SUD
EVHD500	●					
EVHD1000	●	●	●	10kA		TUV-SUD
EVL250	●					
EVL350						

UL standard Surrounding Air Temperature : 40°C



# DC HIGH VOLTAGE EV RELAY SELECTION GUIDE

Series		EVR10	EVR50	EVR100	EVR150	
Specification	Figure					
	Type	See 9~11 page	See 12~14 page	See 15- 17page	See 18~20 page	
Usage		Continuously 15A	Continuously 50A	Continuously 150A	Continuously 170A	
Description		SPST-NO	SPST-NO	SPST-NO	SPST-NO	
Contact ratings	Max. switching current	10A	50A	125A	150A	
	Voltage drop across contacts	0.1V Max. (10A)	0.25V Max.(50A)	30mV Max.(100A)	30mV Max.(100A)	
	Dielectric	Coil to contacts	2500VAC 1Minute	2500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute
		Open contact	2500VAC 1Minute	2500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute
	Ambient temperature	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃	
	Operating time (at nominal voltage)	20ms	20ms	20ms	20ms	
Release time (at nominal voltage)	5ms	5ms	5ms	5ms		
Coil ratings	Ambient temperature	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃	-40℃ ~ 85℃	
	Rated voltage	DC6 to 110V,AC6 to 220V	DC6 to 220V	DC6 to 220V	DC6 to 220V	
	Pick-up voltage (Nominal voltage)	75%max,	75%max,	75%max,	75%max,	
	Drop-out voltage (Nominal voltage)	10%min,	10%min,	10%min,	10%min,	
	Coil power (watts)	1.1 to 1.3	3 to 3.5	5.6 to 5.9	5.6 to 5.9	
Expected life	Mechanical (min)	2,000,000	2,000,000	2,000,000	2,000,000	
	Electrical (min)	70,000	100,000	10,000	10,000	
Aux. Contacts	2(A)30VDC, 3(A) 125AC (resistive load)	X	X	O	O	
Contact resistance(mΩ)		Max. 10	Max. 5	Max. 1	Max. 1	
weight(g)		65	110	300	300	
UL File No.			E210800	E210800	E210800	

## ● 특징 (Features)

- A permanent magnet prevents arc effectively, our products can enables change 1200VDC.
- Compact, easy-to-use structure and easy installation.

## ● 용도 (Usage)

- Power distribution system
- Railroad application
- Rectifier
- Pallet lifter
- Unmanned vehicle
- Satellite station system
- SMPS
- DC motor
- Electric scooter
- Golf car
- Fuel cell
- Solar system
- Battery energy storage system
- Power battery test system
- Electric vehicle
- Switching DC solenoid of power switch gear

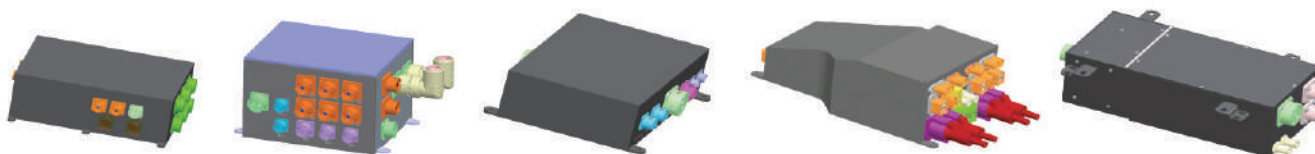




EVR250	EVR400	EVR400-S/B	EVR600	EVH400
		Normal Close Contact 		
See 21~23 page	See 24~26 page	See 27~29 page	See 30~32 page	See 33 ~ 35 page
EVR250	EVR400	EVR400 (Normal Close)	EVR600	EVH400
Continuously 300A	Continuously 500A	Continuously 500A	Continuously 600A	Continuously 400A
SPST-NO	SPST-NO	SPST-NC	SPST-NO	SPST-NO
250A	400A	400A	600A	400A
30mV Max,(100A)	30mV Max,(100A)	30mV Max,(100A)	30mV Max,(100A)	30mV Max, (100A)
3500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute	4500VAC 1Minute
3500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute	4500VAC 1Minute
-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
30ms	30ms	30ms	30ms	40ms
10ms	10ms	10ms	10ms	10ms
-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
DC9 to 95V	DC9 to 95V	DC9 to 95V	DC9 to 95V	DC9 to 36V
75%max,	75%max,	75%max,	75%max,	75%max,
10%min,	10%min,	10%min,	10%min,	10%min,
3 ~ 3.5	3 ~ 3.5	3.5 ~ 4	3 ~ 3.5	4.5~5.5W
500,000	500,000	500,000	500,000	500,000
6,000	3,000	3,000	1,000	6,000(750V 400A)
0	0	0	0	0
Max. 1	Max. 1	Max. 1	Max. 1	Max. 1
420	660	660	920	950
E210800	E210800	E210800		E210800






### DC Hi- Voltage Power Distribution Unit

Hydrogen EV Car, Hybrid Car, Fire Engine, Hybrid Personal Carrier



# DC HIGH VOLTAGE EV RELAY SELECTION GUIDE

## Bi-directional switching device at 1500Vdc

Series		EVH600	EVH750	EVHB100	EVHB400	EVHB500	
Specification	Figure						
	Type	See 36 ~ 38 page	See 39~ 41 page	See 42~44 page	See 45 ~ 47 page	See 48 ~ 50 page	
Usage		Continuously 600A	Continuously 750A	Continuously 100A	Continuously 400A	Continuously 500A	
Description		SPST-NO	SPST-NO	SPST-NO	SPST-NO	SPST-NO	
Contact ratings	Max. switching current	600A	750A	100A	400A	500A	
	Voltage drop across contacts	30mV Max,(100A)	30mV Max,(100A)	20mV Max,(20A)	30mV Max,(100A)	30mV Max, (100A)	
	Dielectric	Coil to contacts	4500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute
		Open contact	4500VAC 1Minute	4500VAC 1Minute	3500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute
	Ambient temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	
	Operating time (at nominal voltage)	40ms	50ms	25ms	40ms	40ms	
Release time (at nominal voltage)	10ms	10ms	10ms	10ms	10ms		
Coil ratings	Ambient temperature	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	
	Rated voltage	DC9 to 36V	DC9 to 36V	DC9 to 48V	DC9 to 36V	DC9 to 95V	
	Pick-up voltage (Nominal voltage)	75%max,	75%max,	75%max,	75%max,	75%max,	
	Drop-out voltage (Nominal voltage)	10%min,	10%min,	10%min,	10%min,	10%min,	
	Coil power (watts)	5.0~6.5W	4.5~5.5W	6.2~6.5W	4.5~5.5W	3 ~ 3.5	
Expected life	Mechanical (min)	200,000	200,000	500,000	200,000	500,000	
	Electrical (min)	6,000(500V 600A)	2,000(500V 750A)	6,000(750V 100A)	6,000(500V 400A)	6,000	
Aux. Contacts	2(A)30VDC, 3(A) 125AC (resistive load)	0	0	0	0	0	
Contact resistance(mΩ)		Max. 1	Max. 1	Max. 1	Max. 1	Max. 1	
weight(g)		1400	1200	180	840	980	
UL File No.		E210800	E210800	E210800	E210800	E210800	

### • EVH series

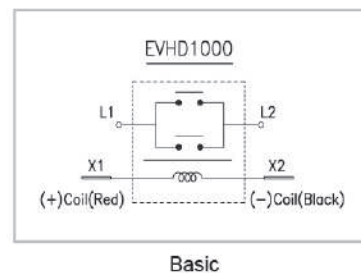
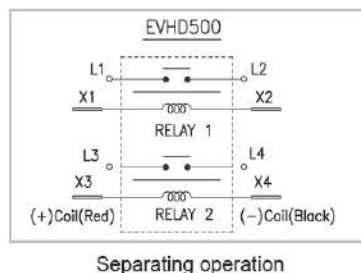
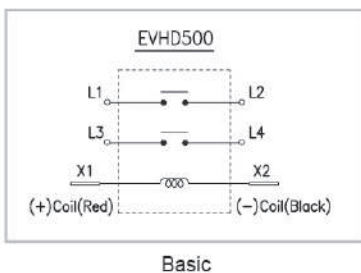
- EVH series are the switching device at 1500Vdc.
- EVHB400, EVHB500 and EVHB500h are the Bi-directional switching device at 1500Vdc.
- Bi-directional switching devices adopted the advanced and unique switching technology of YM Tech.
- Bi-directional switching device is used in the charging and discharging systems of
- Lithium Battery such as battery energy storage systems.
- EVH series is to achieve safety and reliability.
- So, EVHB500 series have Safety cover and Moisture-proof function.





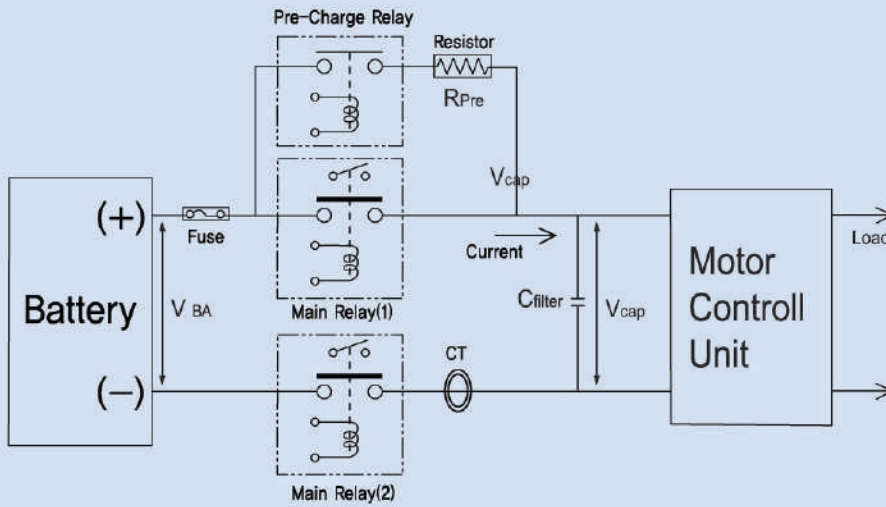
EVHB500H	EVHD500	EVHD1000	EVL250	EVL350
Bi-directional switching device	Bi-directional switching device	Bi-directional switching device	DC High Voltage EV Latch Relay	DC High Voltage EV Latch Relay
				
See 51 ~ 53 page	See 54 ~ 56 page	See 57 ~ 59 page	See 60 ~ 63 page	See 64 ~ 66 page
EVHB500H	EVHD500	EVHD1000	EVL250	EVL350
Continuously 500A	Continuously 500A	Continuously 1000A	Continuously 300A	Continuously 350A
SPST-NO	DPST-NO	SPST-NO	SPST-Latching	SPST-Latching
500A	500A	1000A	250A	350A
30mV Max, (100A)	30mV Max, (100A)	20mV Max, (100A)	30mV Max, (100A)	30mV Max, (100A)
4500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute
4500VAC 1Minute	4500VAC 1Minute	4500VAC 1Minute	3500VAC 1Minute	3500VAC 1Minute
-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
50ms	50ms	50ms	10ms	10ms
10ms	10ms	10ms	10ms	10ms
-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C	-40°C ~ 85°C
DC9 to 36V	DC9 to 95V	DC9 to 95V	DC12V, DC24V	DC12V, DC24V
75%max,	75%max,	75%max,	75% Min, ~ 130% Max,	75% Min, ~ 130% Max,
10% min,	10%min,	10%min,	75% Min, ~ 130% Max,	75% Min, ~ 130% Max,
5.5~6.5W	8.5~10.5	8.5~10.5	19 ~ 21	19 ~ 21
500,000	200,000	200,000	500,000	500,000
6,000(750V 500A)	2,000(1000V 500A)	1,000(400V 1000A)	6,000	1,000
0	0	0	0	0
Max. 1	Max. 1	Max. 0.5	Max. 1	Max. 1
1300	2100	2100	460	610
E210800	E210800	E210800	E210800	E210800

• EVHD : Double Switching device

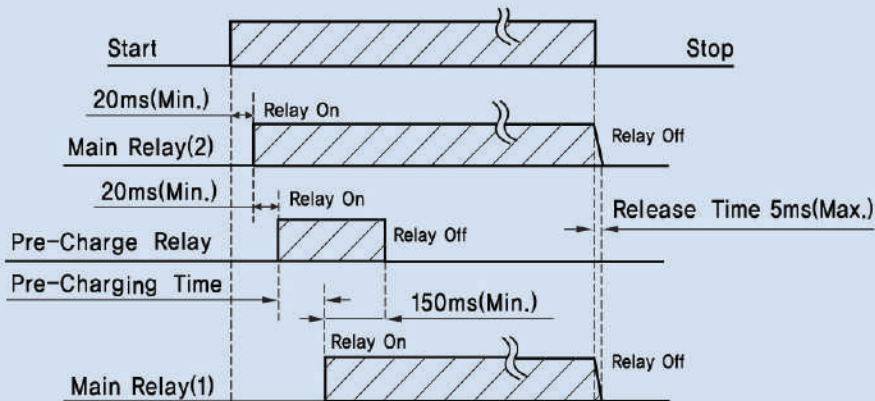


# Main Contact Welds are Prevented(주접점 용착 예방)

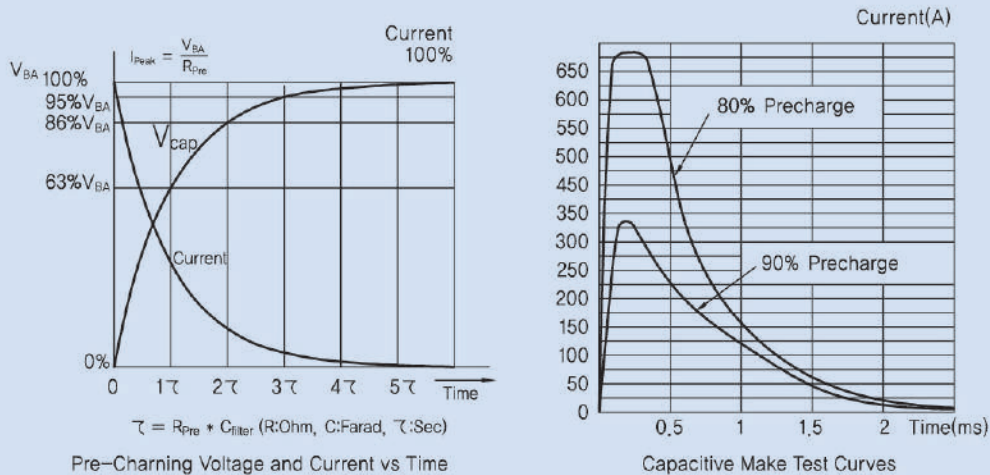
## 1 Pre-Charge Circuit



## 2 Operating Sequence



## 3 Charging Current





# DC HIGH VOLTAGE EV RELAY

# EVR10



EVR10

- ▶ **응용분야 (Application)** : Pre-Charge Relay, Electric Vehicle, Charging System, Solar System, etc.
- ▶ **코일정격 (Magnet coil ratings)**

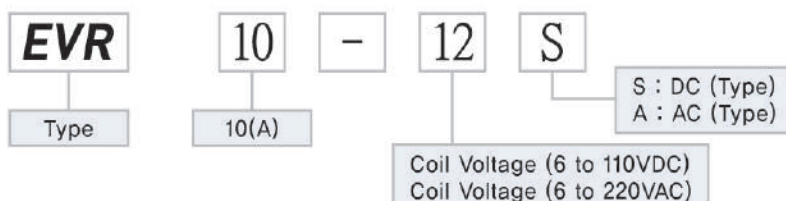
Nominal voltage(V)	Item	Nominal current (mA) 60Hz	Coil resistance (Ω)	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Max. voltage (V)	Coil power(W) dissipation
AC	6	226,5	9,5	80% Min.	30% Max.	130%	1,5~1,8VA (60Hz)
	12	112	35				
	24	56	140				
	50	28	600				
	100/110	11,2/12,4	3,030				
	200/220	8,8/9,7	10,800				
DC	6	200	30	75% Min.	10% Max.	130%	1,1~1,3 Approx.
	12	100	120				
	28	43	650				
	24	50	480				
	36	34	1,080				
	48	25	1,920				
	60	20	3,000				
	72	17	4,320				
	100/110	11/12	9,350				

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%. 3. Performance characteristic coil temperature is measured at +20°C.

## ▶ 접점정격 (Contact ratings)

Item	Type	1Pole Resistor load
		EVR10
Max, switching current (wire size 2,0mm <sup>2</sup> )		10A
Max, switching capacity		1200VDC 2A
Contact rating switching voltages		12~1200VDC
		900VDC 10A(Resistor load)(+ polarity Main Terminal A1 and A2) each NO contact connected in series
C-R Load (Pre-Charge)		550V 10A 150,000Ops
Max, contact performance (wire size 2,0mm <sup>2</sup> )		30A 120Sec.
		20A 180Sec.
Voltage drop across contacts per 10A		0,3V Max. (At 5VDC)
Min, permissible load		12VDC 0,1A
Description		S,P,S,T On/Off, (1a)

## ▶ 주문방법 (Ordering information)



## DC HIGH VOLTAGE EV RELAY

## EVR10



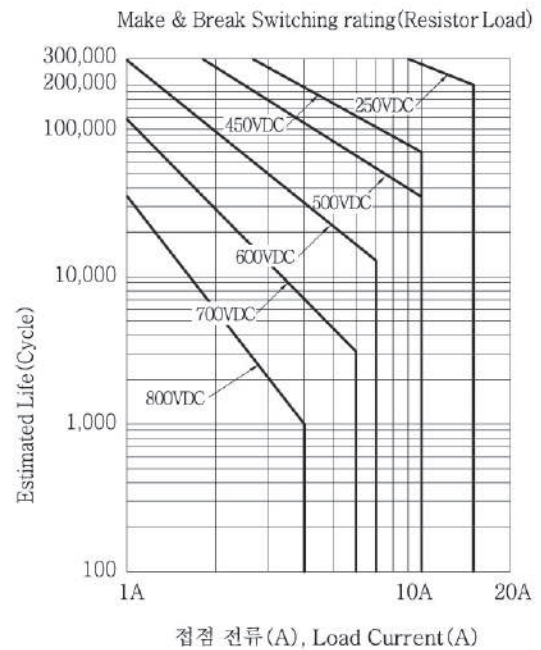
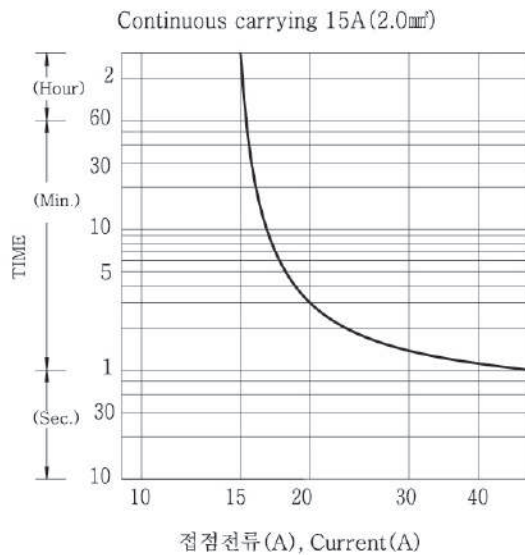
## ▶ 성능 (Characteristics)

Initial insulation resistance		Min, 100mΩ 500VDC
Expected life	Mechanical (Min.)	
	Electric (Min.) (Resistor)	450VDC 10A
		250VDC 15A
Between open contacts		2500VAC 60 Sec, 10mA
Between contacts & coil		2500VAC 60 Sec, 10mA
Operate time (at 20°C)		Max, 20ms
Release time (at 20°C)		Max, 5ms
Shock resistance	Functional	Min 196 % {20G}, (10μs)
	Destructive	Min 490 % {50G}
Vibration resistance	Functional	43 % {4.4G} 10 to 200Hz, (10μs)
	Destructive	43 % {4.4G} 10 to 200Hz
Conditions for operation transport and storage	Ambient temperature	-40°C to +85°C
	Humidity	5 to 85% R.H.
Unit weight		65g

## ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)





# DC HIGH VOLTAGE EV RELAY

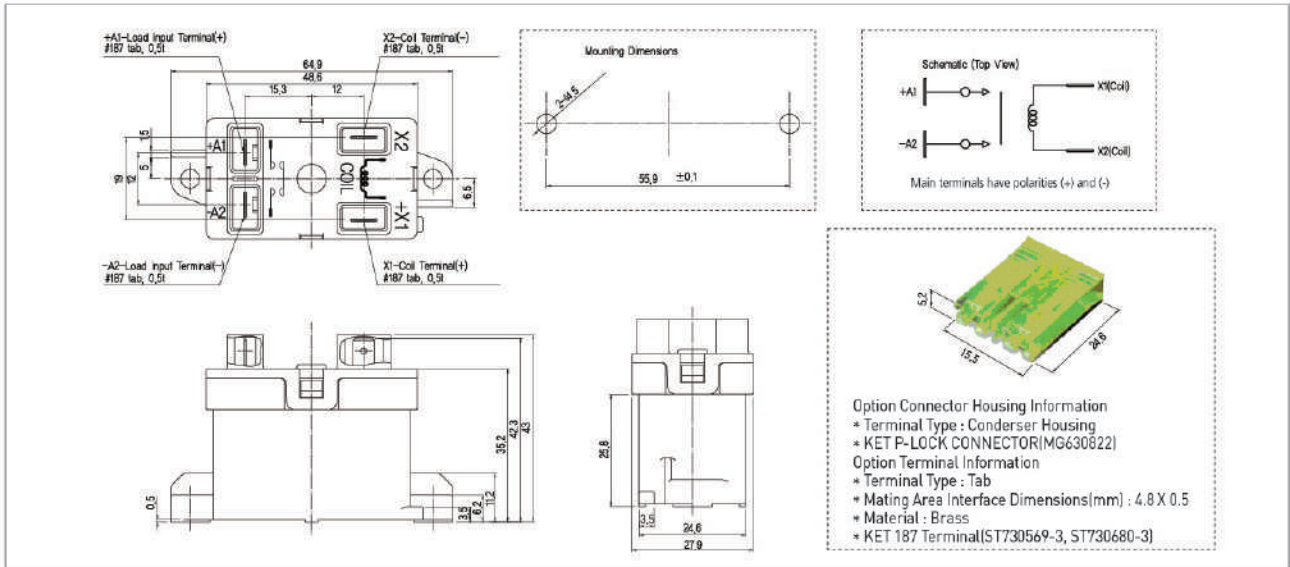
# EVR10



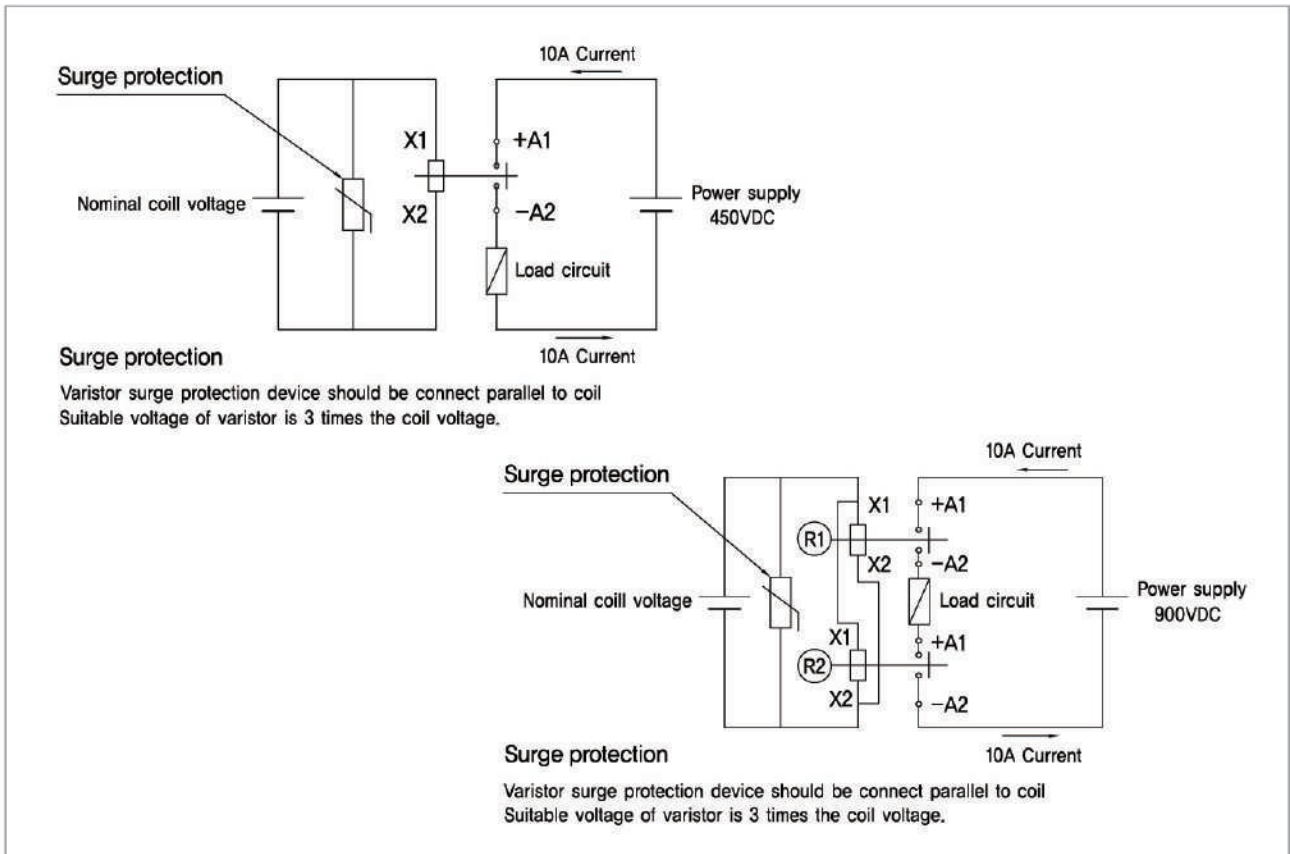
EVR10

## ▶ 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0



## ▶ 회로 (Circuit)



## DC HIGH VOLTAGE EV RELAY

## EVR50



▶ **응용분야 (Application)** : Pre-Charge Relay, Electric Vehicle, Charging System, Solar System, Heating System, etc.

▶ **코일정격 (Magnet coil ratings)**

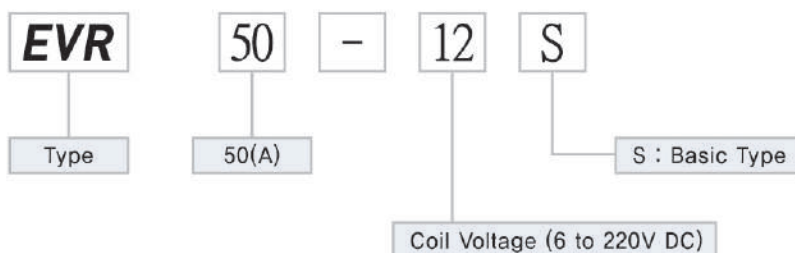
Nominal voltage(V)	Item	Nominal Coil current (mA)	Coil resistance (Ω)	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Max. voltage (V)	Coil power(W) dissipation
DC	220	17	14,500	75%	10%	130%	3 ~ 3.5
	110	29	3,750				
	72	45	1,600				
	60	54	1,120				
	48	66	730				
	36	90	400				
	24	133	180				
	12	267	45				
	6	545	11				

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVR50
Max. switching current (wire size 10mm <sup>2</sup> )		50A
Max. switching capacity		1200VDC 10A
Contact rating switching voltages		12~1200VDC
Max. contact performance (wire size 10mm <sup>2</sup> )		150A 30Sec.
		250A 10Sec.
Voltage drop across contacts per 50A		0,25V Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off, (1a)

▶ **주문방법 (Ordering information)**





# DC HIGH VOLTAGE EV RELAY

# EVR50



EVR50

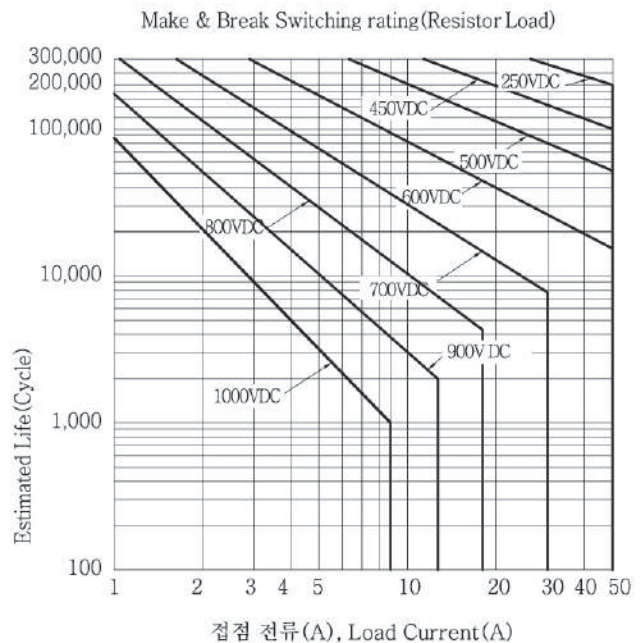
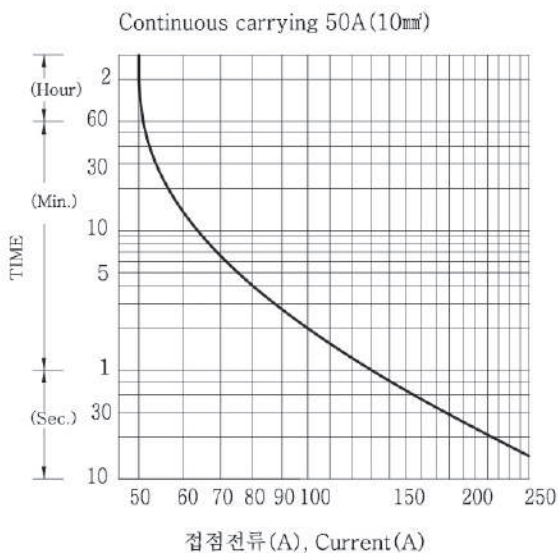
## ▶ 성능 (Characteristics)

Initial insulation resistance		Min, 100mΩ 500VDC
Expected life	Mechanical (Min.)	2×10 <sup>6</sup>
	Electric (Min.) (Resistor)	450VDC 50A 250VDC 50A
Initial breakdown voltage	Between open contacts	2,500VAC 60 Sec, 10mA
	Between contacts & coil	2,500VAC 60 Sec, 10mA
Operate time (at 20°C)		Max, 20ms
Release time (at 20°C)		Max, 5ms
Shock resistance	Functional	Min 196 % {20G}, (10μs)
	Destructive	Min 490 % {50G}
Vibration resistance	Functional	43 % {4.4G} 10 to 200Hz, (10μs)
	Destructive	43 % {4.4G} 10 to 200Hz
Conditions for operation transport and storage	Ambient temperature	-40°C to +85°C
	Humidity	5 to 85% R.H.
Unit weight		110g

## ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



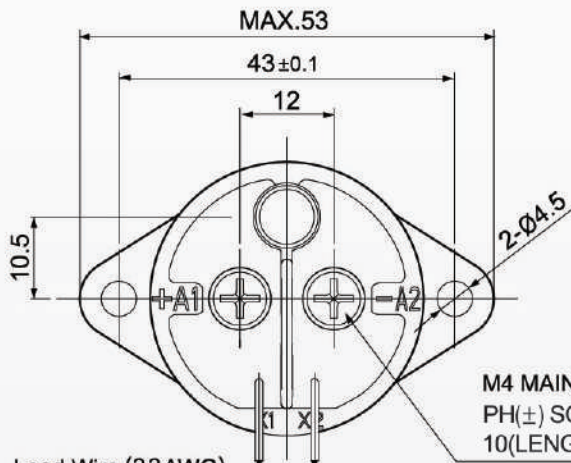
# DC HIGH VOLTAGE EV RELAY

## EVR50



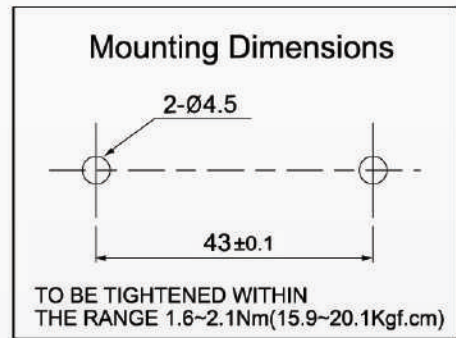
### 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0

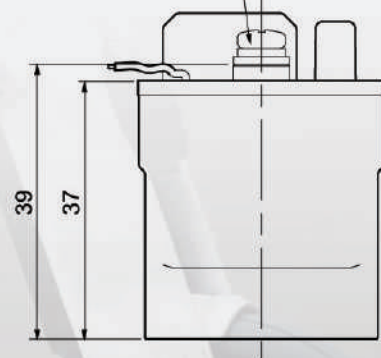
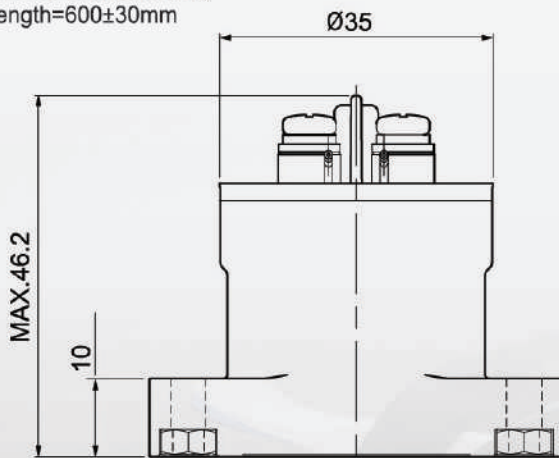


Lead Wire (22AWG)  
for Coil Connections  
Length=600±30mm

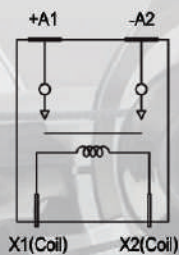
M4 MAIN TERMINALS  
PH(±) SCREW M4X0.7(PITCH)  
10(LENGTH) S.P/WASHER Length=8mm



M4 MAIN TERMINALS  
TO BE TIGHTENED WITHIN  
THE RANGE 1.6~2.1Nm(15.9~20.1Kgf.cm)



Schematic (Top View)



Main terminals have polarities (+) and (-)



# DC HIGH VOLTAGE EV RELAY

# EVR100



EVR100

▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Solar System, Golf Car, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

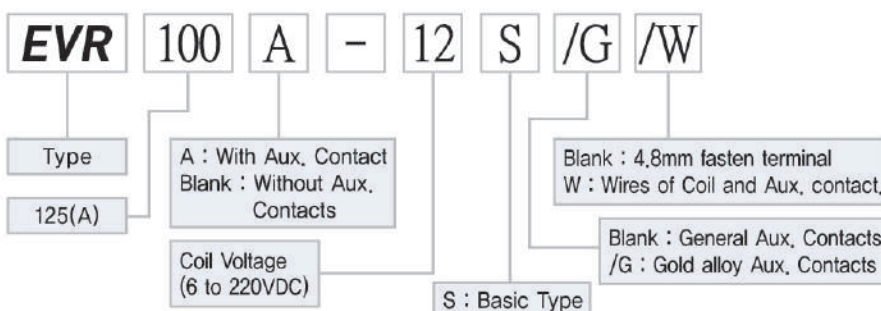
Nominal voltage(V)	Item	Nominal Coil current (mA)	Coil resistance (Ω)	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Max. voltage (V)	Coil power(W) dissipation
DC	220	27	8,600	75%	10%	130%	5.6 ~ 5.9
	110	52	2,100				
	72	83	870				
	60	95	630				
	48	117	410				
	36	156	230				
	24	245	110				
	12	480	25				
	6	952	6,3				

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

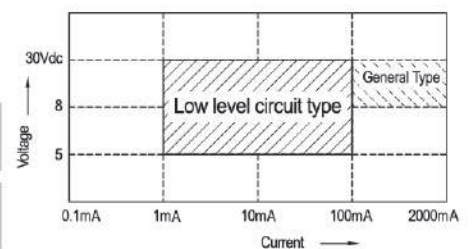
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVR100
Max. Continuous current (wire size 50mm <sup>2</sup> )		150A
Max. switching current		125A
Max. switching capacity		1200VDC 20A
Contact rating switching voltages		12~1200VDC
Max. cut-off current		300VDC 1000A 3 Ops
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min.		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact



## DC HIGH VOLTAGE EV RELAY

## EVR100



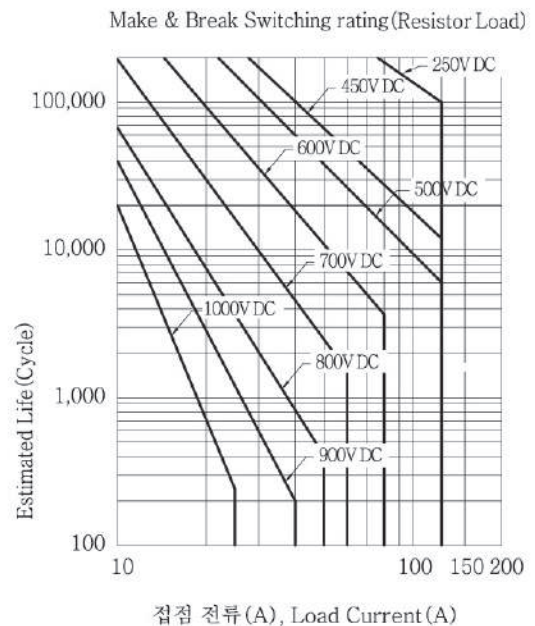
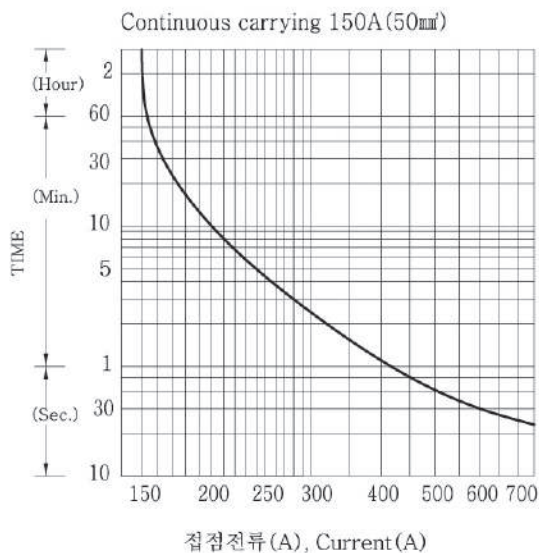
## ▶ 성능 (Characteristics)

Initial insulation resistance		Min, 100mΩ 500VDC
Expected life	Mechanical (Min.)	
	Electric (Min.) (Resistor)	450VDC 125A 250VDC 125A
Initial breakdown voltage	Between open contacts	
	Between contacts & coil	
Operate time (at 20°C)		Max, 20ms
Release time (at 20°C)		Max, 5ms
Shock resistance	Functional	
	Destructive	
Vibration resistance	Functional	
	Destructive	
Conditions for operation transport and storage	Ambient temperature	
	Humidity	
Unit weight		300g

## ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)





DC HIGH VOLTAGE EV RELAY

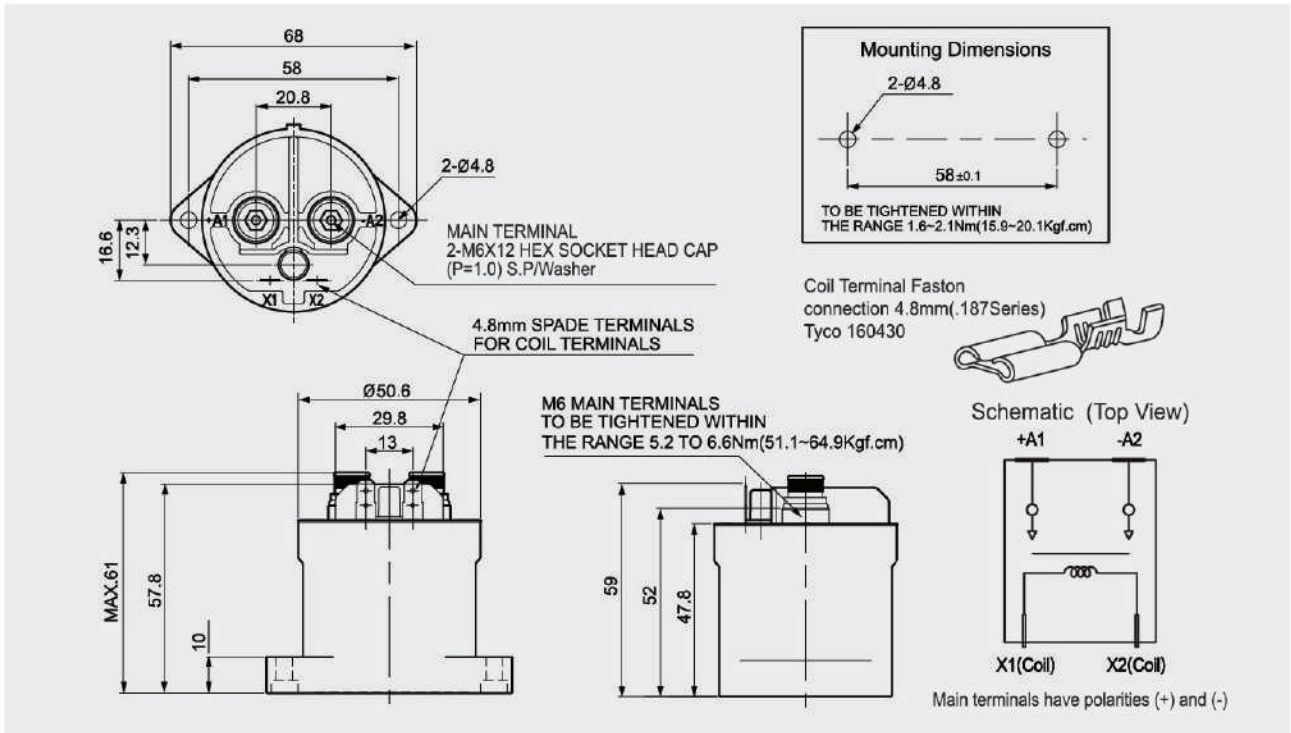
# EVR100



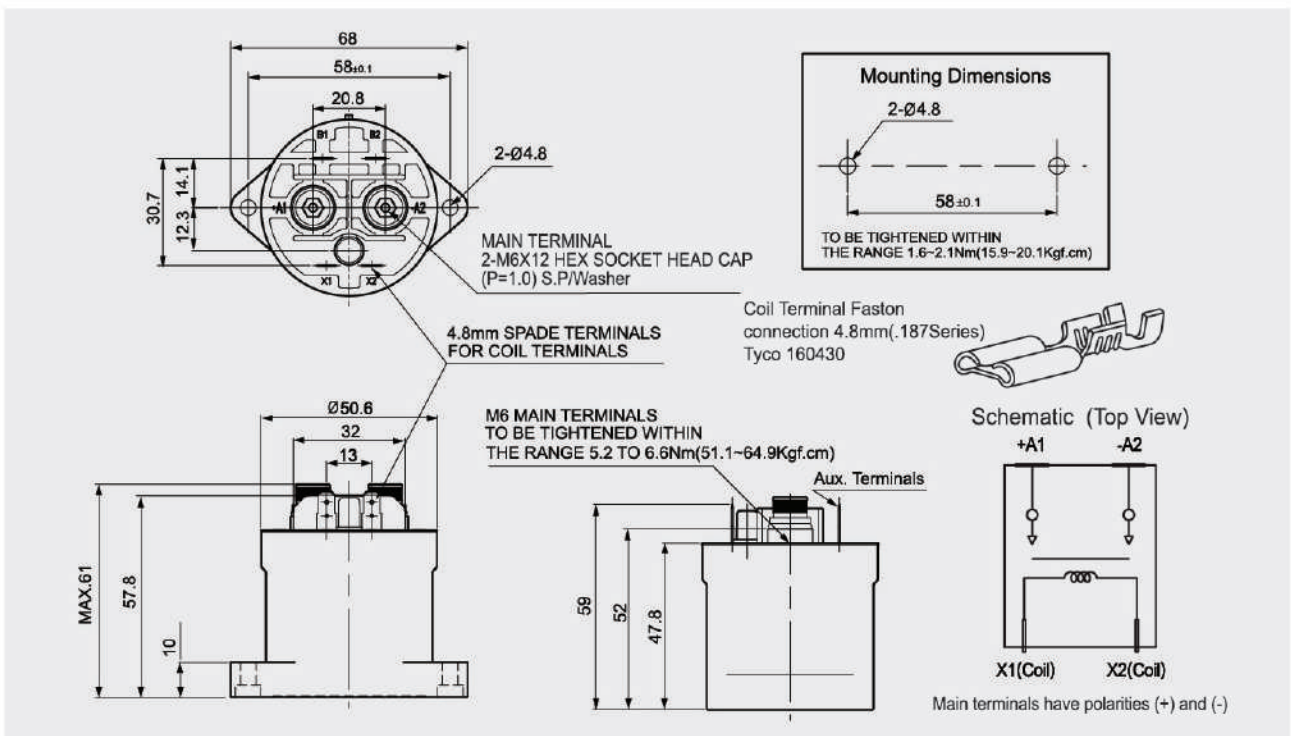
EVR100

▶ 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0



(Aux. Type)



## DC HIGH VOLTAGE EV RELAY

## EVR150



▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Solar System, Golf Car, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

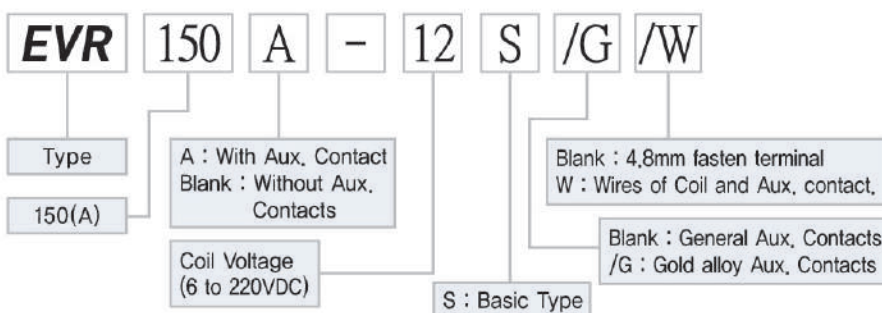
Nominal voltage(V)	Item	Nominal Coil current (mA)	Coil resistance (Ω)	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Max. voltage (V)	Coil power(W) dissipation
DC	220	27	8,600	75%	10%	130%	5.6 ~ 5.9
	110	52	2,100				
	72	83	870				
	60	95	630				
	48	117	410				
	36	156	230				
	24	245	110				
	12	480	25				
	6	952	6,3				

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

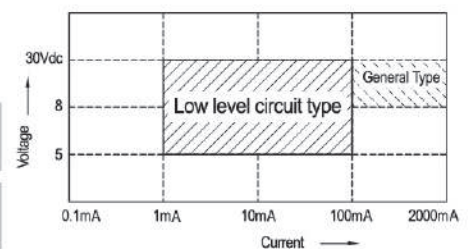
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVR150
Max. Continuous current (wire size 50mm <sup>2</sup> )		170A
Max. switching current		150A
Max. switching voltages		1200VDC 30A
Contact rating switching voltages		12~1200VDC
Max. cut-off current		300VDC 1000A 3 Ops
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min.		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





# DC HIGH VOLTAGE EV RELAY

# EVR150



EVR150

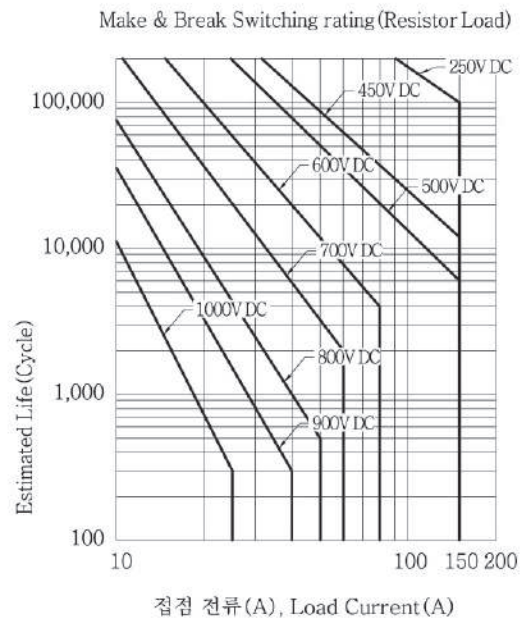
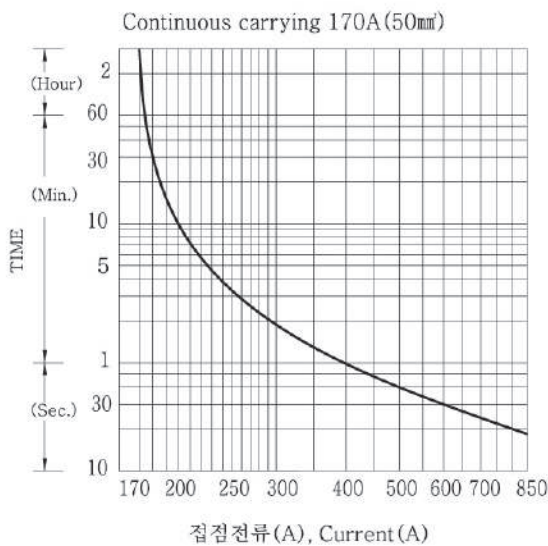
## ▶ 성능 (Characteristics)

Initial insulation resistance		Min, 100mΩ 500VDC
Expected life	Mechanical (Min.)	
	2×10 <sup>6</sup>	
Electric (Min.) (Resistor)	450VDC 150A	1×10 <sup>4</sup>
	250VDC 150A	1×10 <sup>5</sup>
Initial breakdown voltage	Between open contacts	
	3500VAC 60 Sec, 10mA	
Between contacts & coil		3500VAC 60 Sec, 10mA
Operate time (at 20°C)		Max, 20ms
Release time (at 20°C)		Max, 5ms
Shock resistance	Functional	Min 147 ⅈ {15G}
	Destructive	Min 490 ⅈ {50G}
Vibration resistance	Functional	98 ⅈ {10G} 10 to 500Hz
	Destructive	98 ⅈ {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature	
	-40°C to +85°C	
Humidity		5 to 85% R.H.
Unit weight		300g

## ▶ 특성곡선 (Reference data)

- 온도상승곡선
  - 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



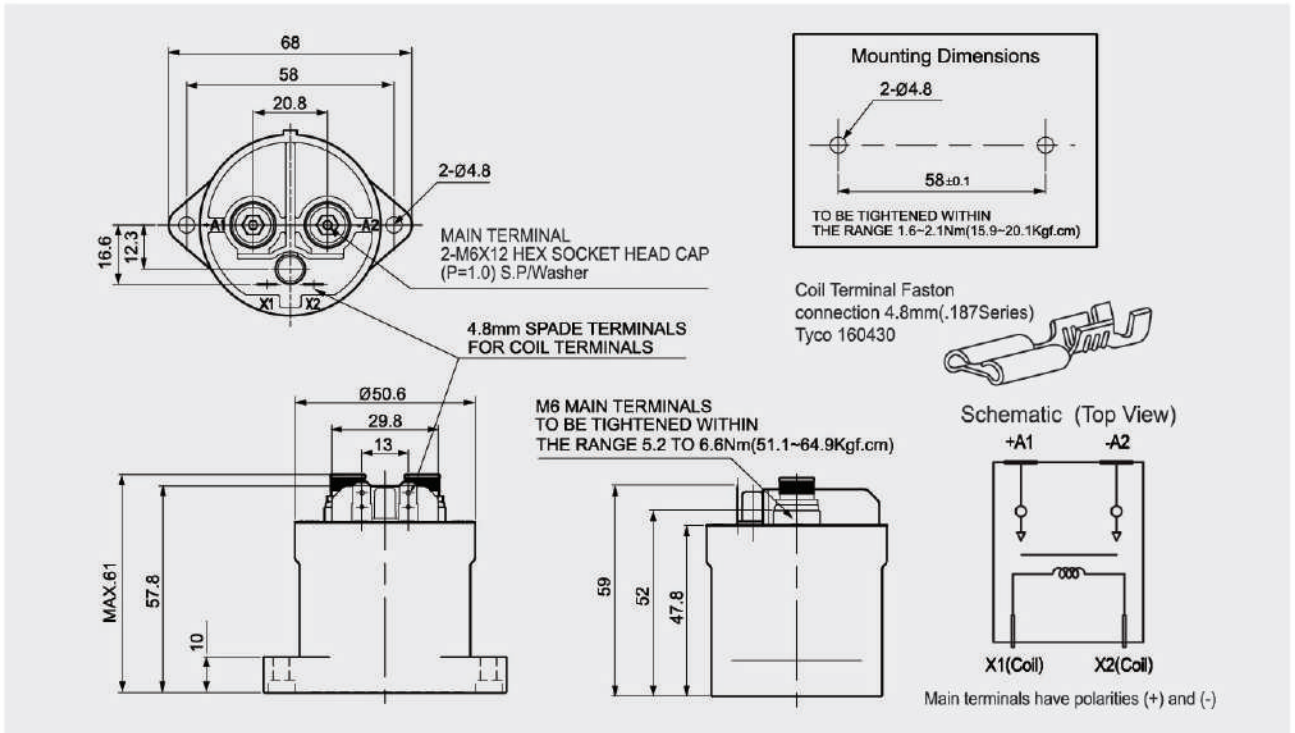
# DC HIGH VOLTAGE EV RELAY

# EVR150

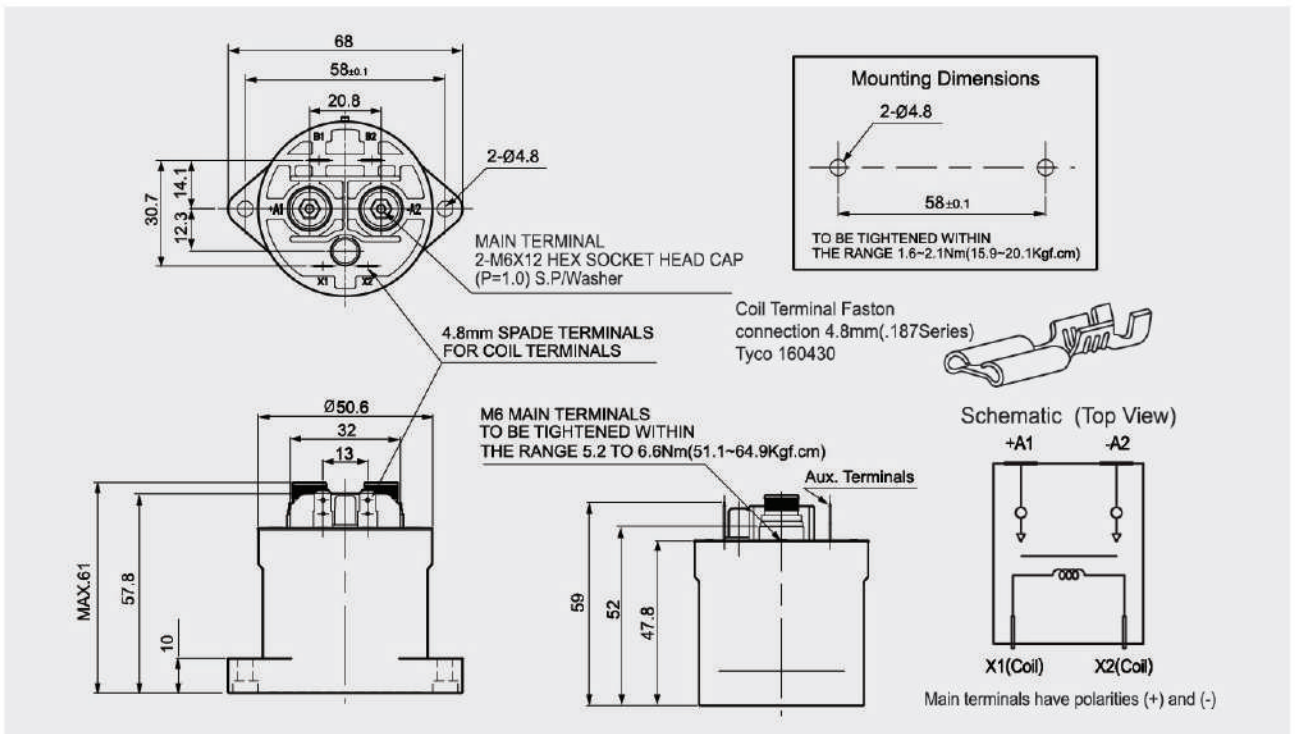


## ▶ 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0



(Aux. Type)



# DC HIGH VOLTAGE EV RELAY

# EVR250(NEW)



EVR250

▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Solar System, Golf Car, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

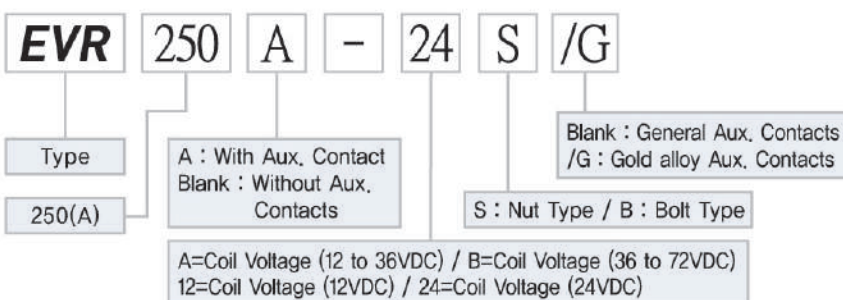
Nominal voltage(V)	Item	Inrush Coil current 100ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)
B	72	1,3A	0,04A	32VDC	18VDC	22VDC	95VDC
	60	1,3A	0,05A				
	36	1,1A	0,1A				
A	36	2,4A	0,09A	9VDC	6VDC	7,5VDC	36VDC
	24	2,4A	0,14A				
	12	2,4A	0,29A				
12		2,4A	0,29A	9VDC	6VDC	7,5VDC	18VDC
24		1,3A	0,17A	18VDC	12VDC	13,5VDC	32VDC

Notes : 1, Nominal current and coil resistance are measured at +20°C. 2, Differences of coil resistance are ±10%,  
3, Performance characteristic coil temperature is measured at +20°C.

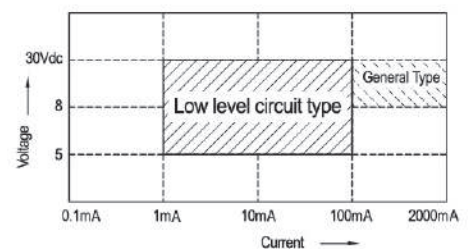
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load	
		EVR250	
Max, Continuous current (wire size 300mm <sup>2</sup> )		500A	
Max, switching current		250A	
Max, switching capacity at max, voltages		900VDC 200A	
Contact rating switching voltages		12~1200VDC	
Max, cut-off current		600VDC 1000A 3 Ops / 400VDC 1500A 2 Ops	
C-R load (charging)		500V 1500A 4,000 Ops / 500V 500A 30,000 Ops	
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)	
Min, permissible load		12VDC 0,5A	
Description		S,P On/Off (a)	
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)	
General Aux, Contact Current, Max.		2A 30VDC / 3A 125VAC	
General Aux, Contact Current, Min.		100mA 8VDC	
Gold alloy Aux, Contacts Max.		0,1A 30VDC / 0,1A 30VAC	
Gold alloy Aux, Contacts Min.		1mA 5VDC / 1mA 5VAC	

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## DC HIGH VOLTAGE EV RELAY

# EVR250(NEW)



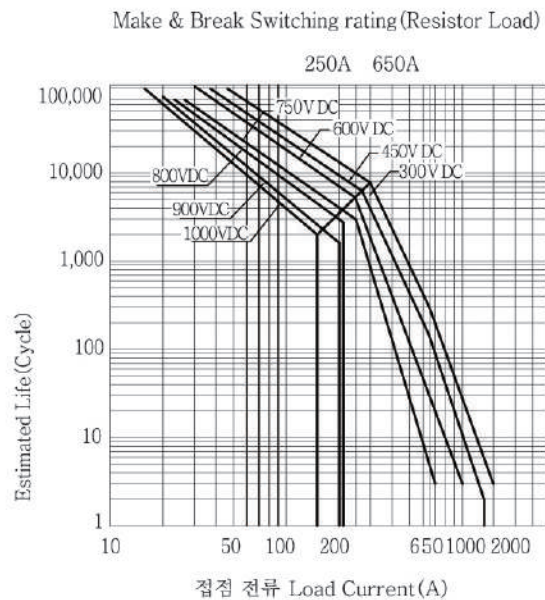
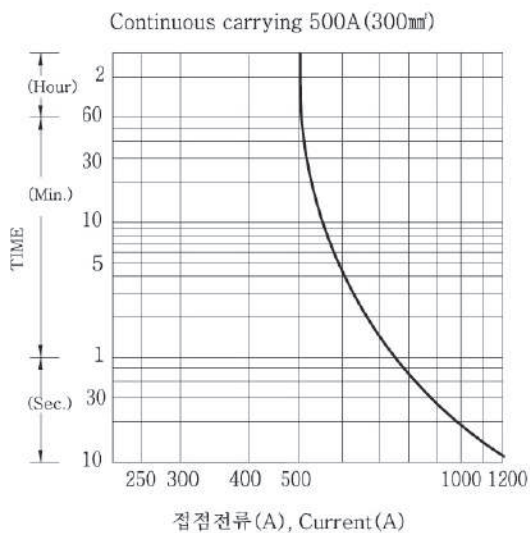
### ▶ 성능 (Characteristics)

Initial insulation resistance		5×10 <sup>5</sup>	
Expected life	Electric (Min.) (Resistor)	450VDC 250A	7×10 <sup>3</sup>
		750VDC 250A	3×10 <sup>3</sup>
Initial insulation resistance		Min. 100mΩ 500VDC	
Initial breakdown voltage	Between open contacts		4000VAC 60 Sec. 5mA
	Between contacts & coil		4000VAC 60 Sec. 5mA
Operate time (at 20°C)		Max. 30ms	
Release time (at 20°C)		Max. 10ms	
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 2000Hz
	Destructive		196 % {20G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight		460g	

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



DC HIGH VOLTAGE EV RELAY

# EVR250(NEW)

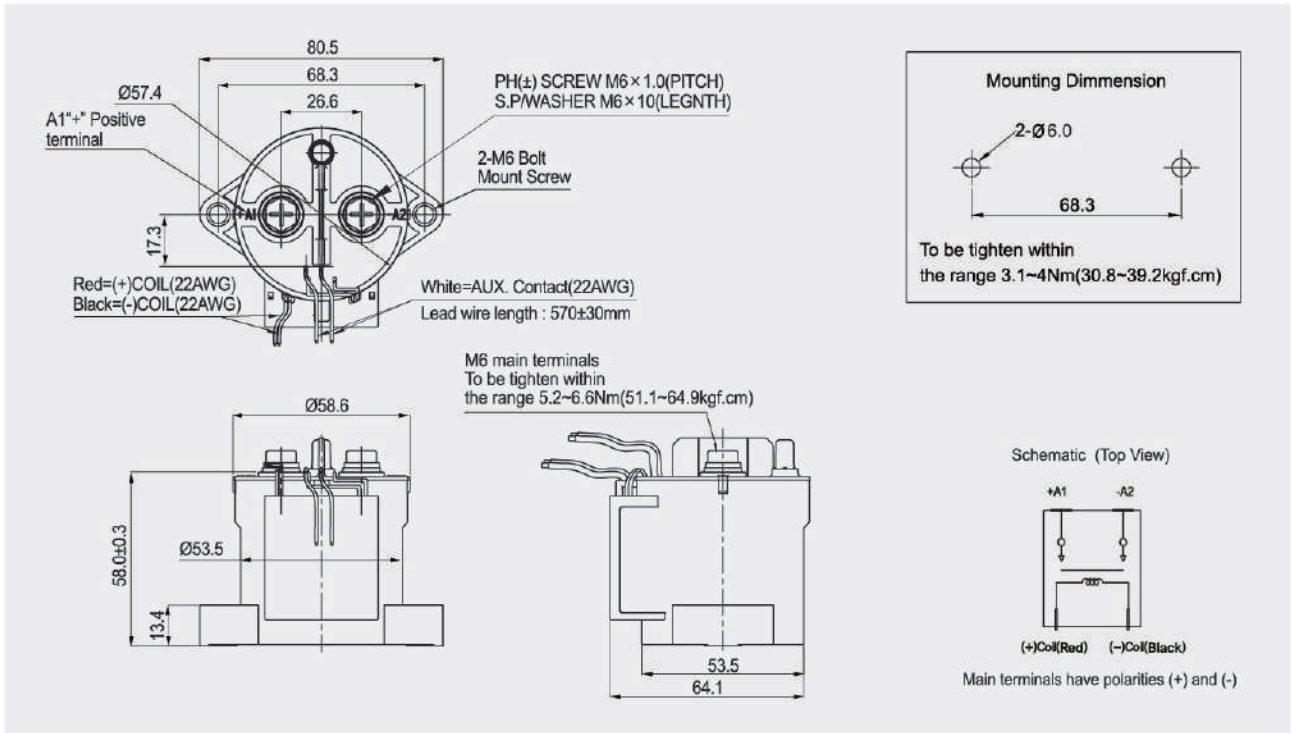


EVR250EVR250

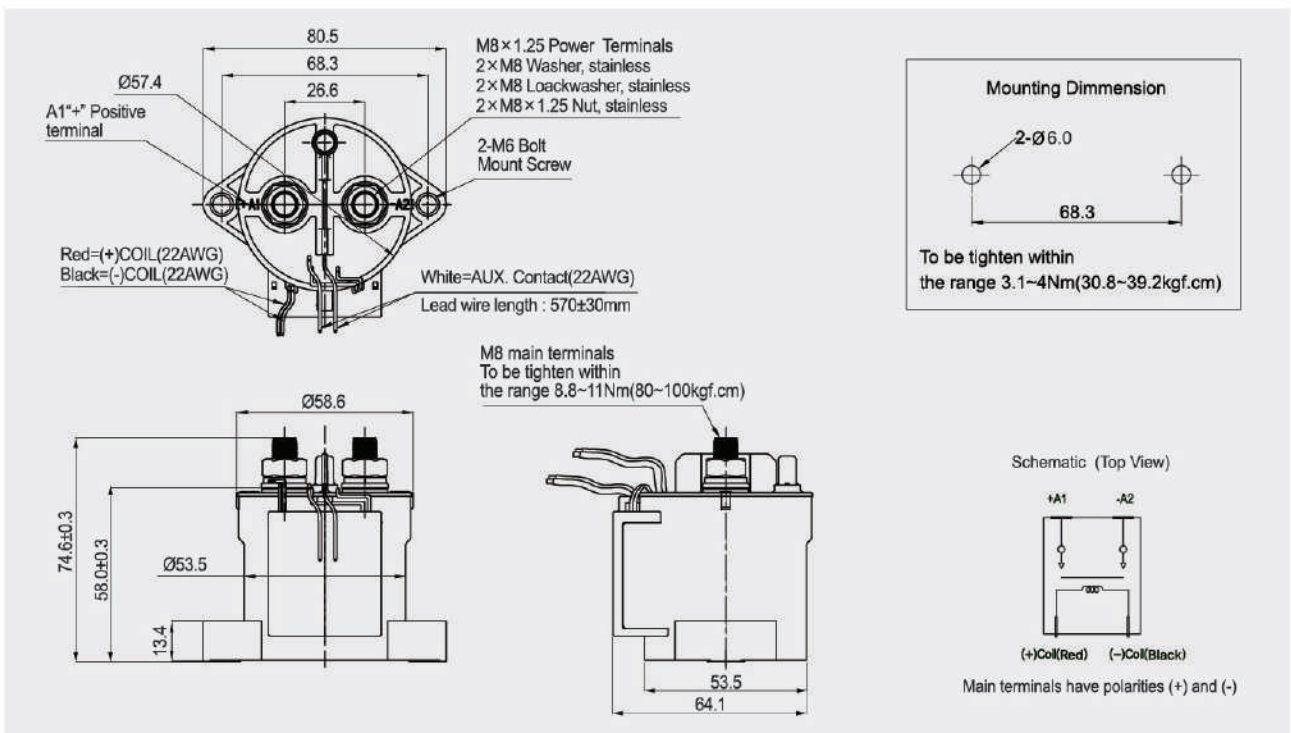
공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0

▶ 외형치수도 (Dimension in mm)

S: Nut on Type



B: Bolt Type



## DC HIGH VOLTAGE EV RELAY

## EVR400



▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Solar System, Golf Car, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

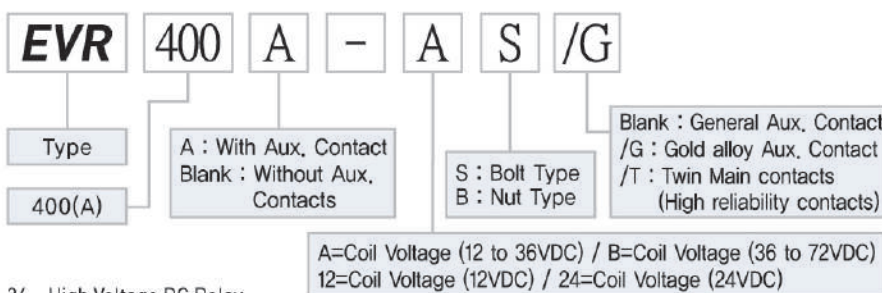
Nominal voltage(V)	Item	Inrush Coil current 100ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)
B	72	1,1A	0,06A	32VDC	18VDC	22VDC	95VDC
	60	1,0A	0,06A				
	36	0,95A	0,1A				
A	36	2,0A	0,09A	9VDC	6VDC	7,5VDC	36VDC
	24	1,8A	0,13A				
	12	1,4A	0,27A				
	12	1,2A	0,32A	9VDC	6VDC	7,5VDC	18VDC
	24	0,6A	0,16A	18VDC	12VDC	13,5VDC	32VDC

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ . 3. Performance characteristic coil temperature is measured at +20°C.

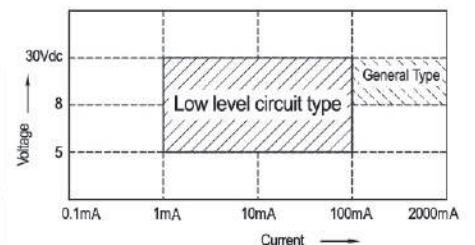
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load	
		EVR400	
Max. Continuous current (wire size 150mm <sup>2</sup> ×2)		500A	
Max. switching current		450VDC 400A	UL Certification
		1200VDC 80A	
		1000VDC 200A	
		1000VDC 100A	
Contact rating switching voltages		12~1500VDC	
Max. cut-off current		300VDC 2500A 3 Ops	
C-R load (charging)		500V 1500A 4,000 Ops / 500V 500A 30,000 Ops	
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)	
Min. permissible load		12VDC 0,5A	
Description		S,P On/Off (a)	
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)	
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC	
General Aux. Contact Current, Min.		100mA 8VDC	
Gold alloy Aux. Contacts Max.		0,1A 30VDC / 0,1A 30VAC	
Gold alloy Aux. Contacts Min.		1mA 5VDC / 1mA 5VAC	

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





# DC HIGH VOLTAGE EV RELAY

## EVR400



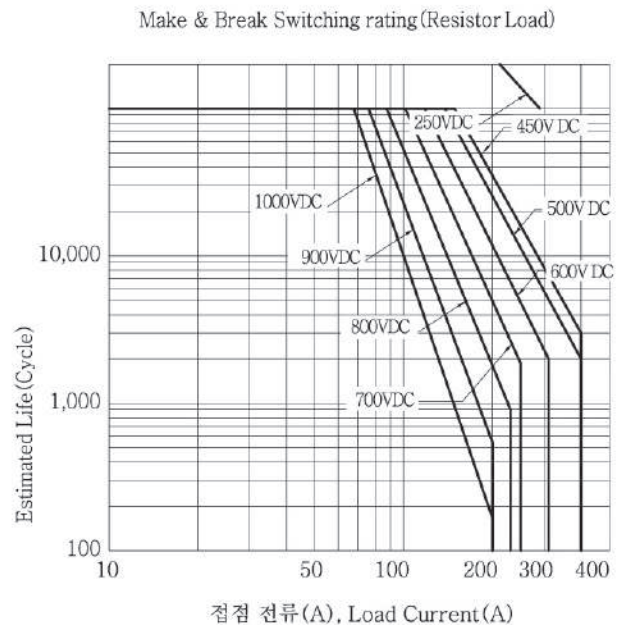
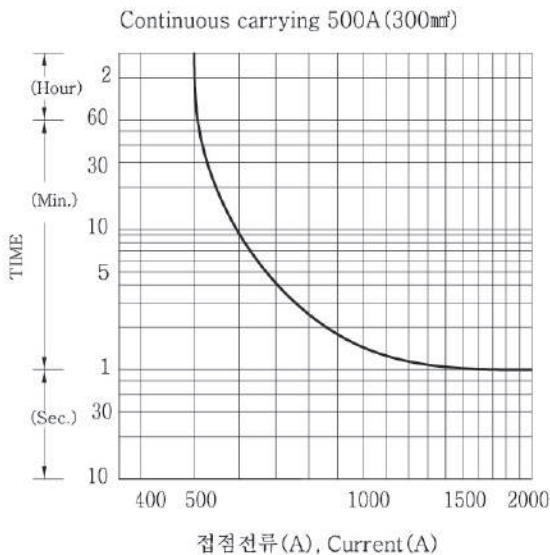
EVR400

### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	450VDC 400A	$3 \times 10^3$
		250VDC 400A	$1 \times 10^5$
		1000VDC 100A	$1 \times 10^4$
		1000VDC 200A	$1 \times 10^3$
Initial insulation resistance			Min, 100mΩ 500VDC
Initial breakdown voltage	Between open contacts		3500VAC 60 Sec, 5mA
	Between contacts & coil		3500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 30ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 2000Hz
	Destructive		196 % {20G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			660g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 전기적 수명 곡선 (Estimated Switching Ratings)
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)



# DC HIGH VOLTAGE EV RELAY

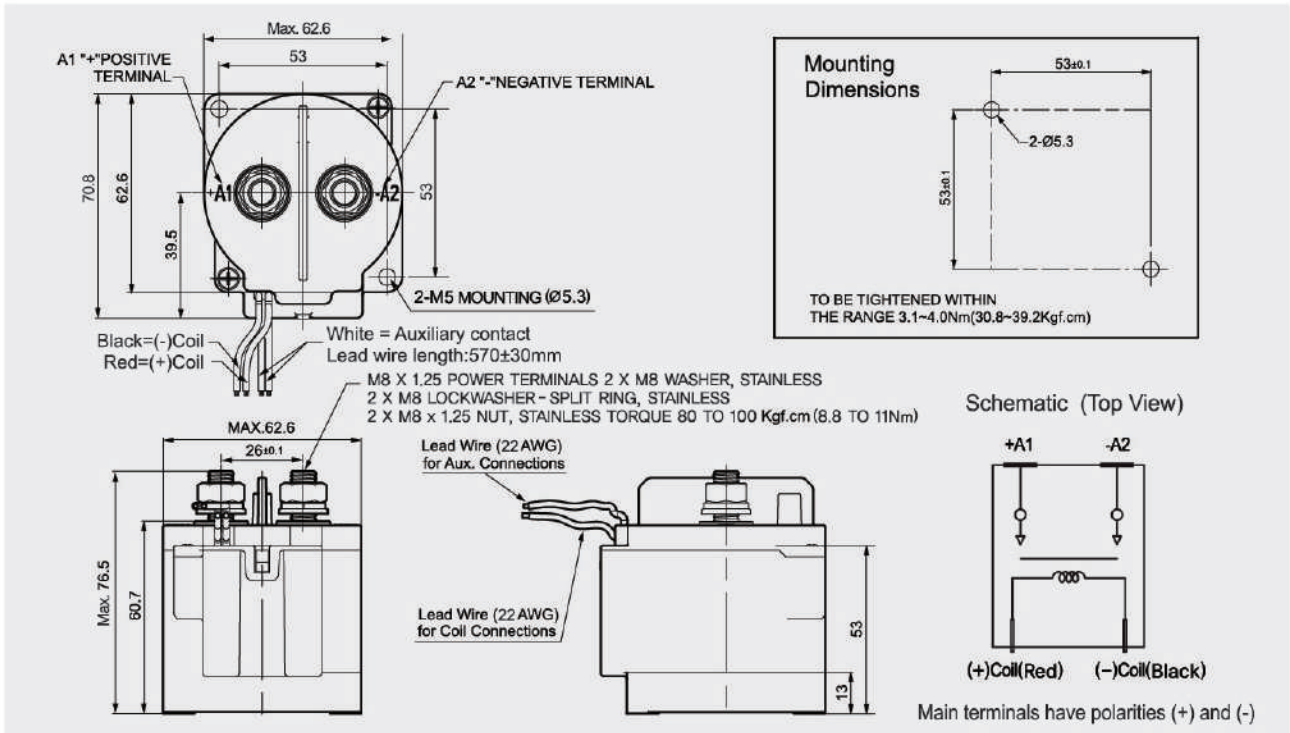
# EVR400



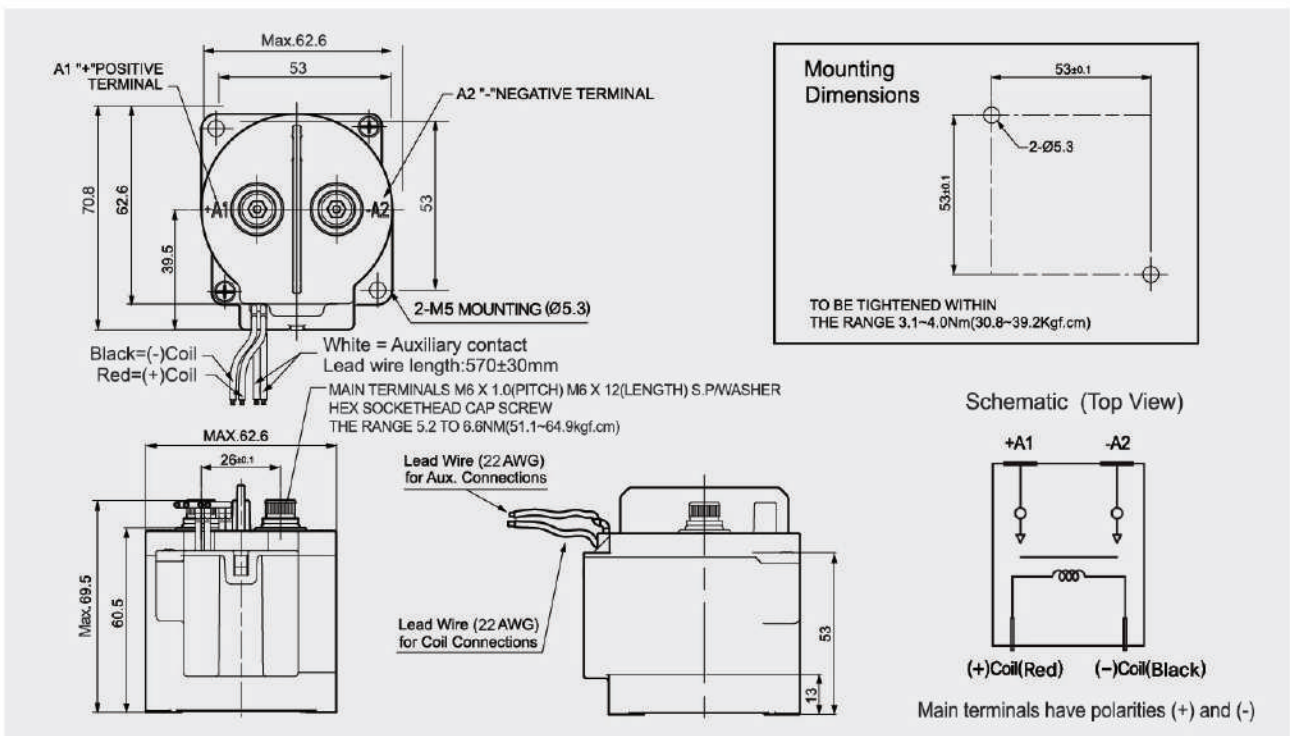
공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0

## ▶ 외형치수도 (Dimension in mm)

S: Bolt Type



B: Nut Type



DC HIGH VOLTAGE EV RELAY

# EVR400-S/B

## (Normal Close Contact)



EVR400-S/B

▶ **응용분야 (Application)** : Elarth device of Solar Power Systems

▶ **코일정격 (Magnet coil ratings)**

Nominal voltage(V)	Item	Inrush Coil current 150ms(Max.)	Holding Coil current	Pick-up voltage (V)max, Contact Closing → pening)	Drop-out voltage (V)min, (Contact Opening → Closing)	Holding voltage (V)min (Contact:Opening)	Max. voltage (V)
A	36	4,0A	0,2A	9VDC	6VDC	7,5VDC	36VDC
	24		0,25A				
	12		0,3A				
	12	4,0A	0,3A	9VDC	6VDC	7,5VDC	18VDC
	24	2,7A	0,3A	18VDC	12VDC	13,5VDC	32VDC

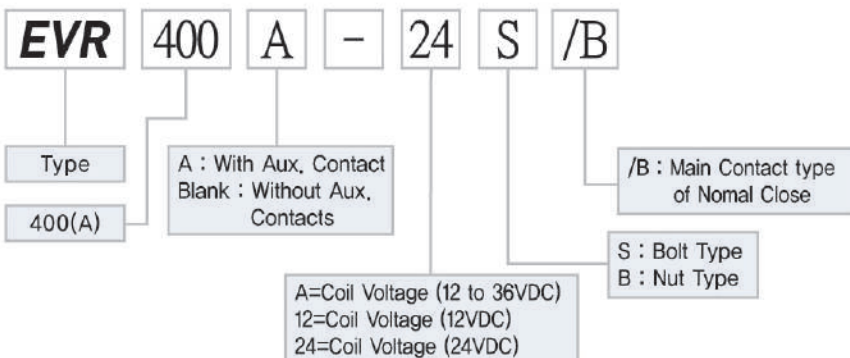
Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

▶ **접점정격 (Contact ratings)**

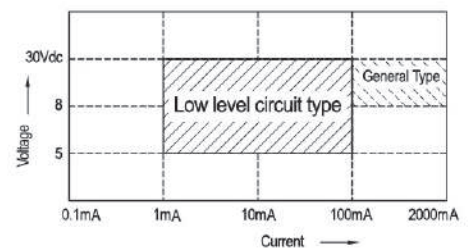
Item	Type	1Pole Resistor load	
		EVR400-S/B	
Max, Continuous current (wire size 150mm <sup>2</sup> ×2)		500A	
Max, switching current		1200VDC 80A	UL Certification
		1000VDC 90A	
		1200VDC 80A	
Contact rating switching voltages		1000VDC 100A	
Voltage drop across contacts per 100A		12~1500VDC	
Min, permissible load		30mV Max. (At 5VDC)	
Description		12VDC 0,5A	
Contact Arrangement		S,P On/Off (b)	
		1Form B (SPST-NC,)	

Notes : EVR400-S/B is without aux, contact,

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## DC HIGH VOLTAGE EV RELAY

# EVR400-S/B

## (Normal Close Contact)



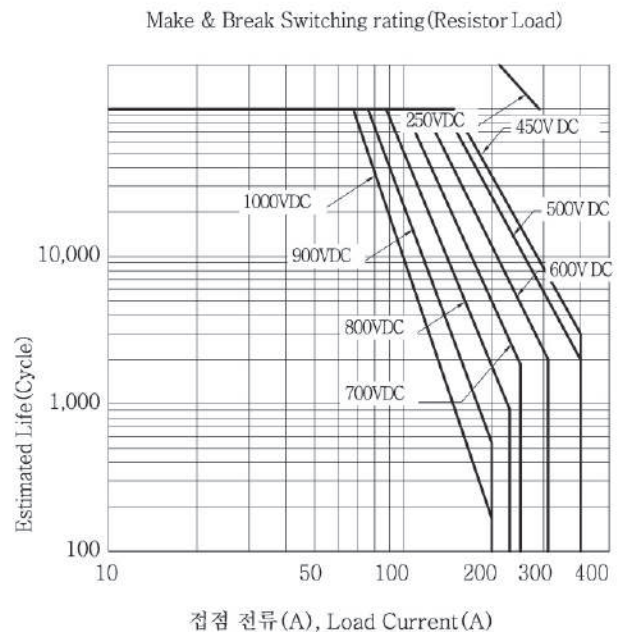
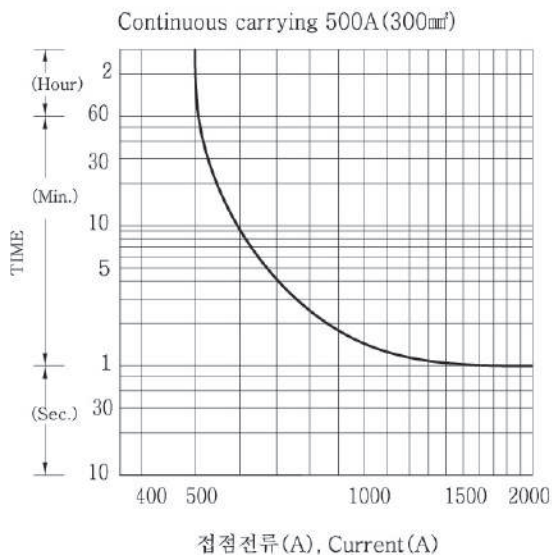
### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	450VDC 400A	$3 \times 10^3$
		250VDC 400A	$1 \times 10^5$
		1000VDC 100A	$1 \times 10^3$
Initial insulation resistance			Min, 100m $\Omega$ 500VDC
Initial breakdown voltage	Between open contacts		3500VAC 60 Sec, 5mA
	Between contacts & coil		3500VAC 60 Sec, 5mA
Operate time (at 20°C) (Contact closing → Contact opening)			Max, 30ms
Release time (at 20°C) (Contact opening → Contact closing)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 2000Hz
	Destructive		196 % {20G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			660g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



DC HIGH VOLTAGE EV RELAY

# EVR400-S/B (Normal Close Contact)

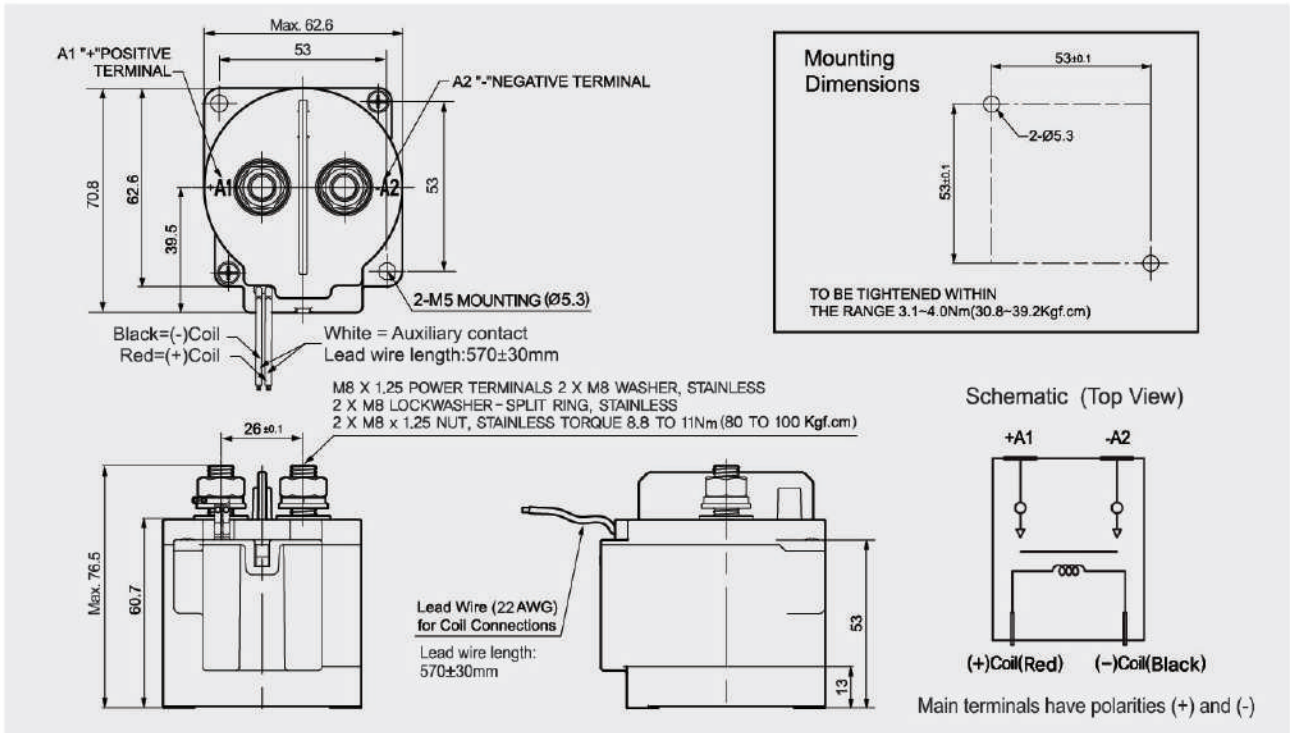


EVR400-S/B

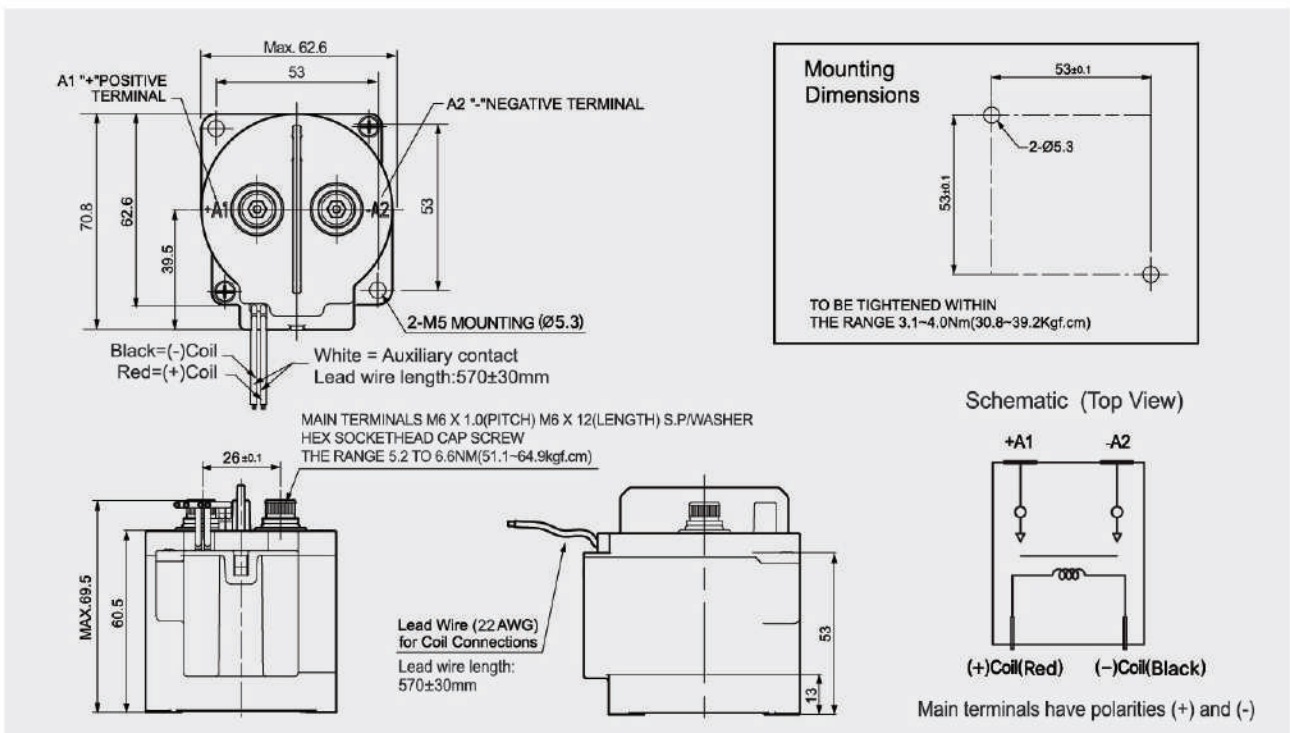
公差(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0

## ▶ 외형치수도 (Dimension in mm)

S: Bolt Type



B: Nut Type



## DC HIGH VOLTAGE EV RELAY

## EVR600



▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Solar System, Golf Car, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

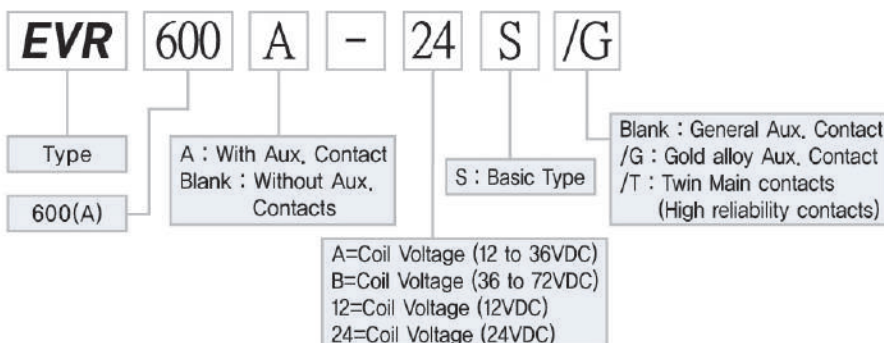
Nominal voltage(V)	Item	Inrush Coil current 100ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V) min.	Max. voltage (V)
B	72	1,1A	0,04A	32VDC	18VDC	22VDC	95VDC
	60	1,0A	0,06A				
	36	0,9A	0,08A				
A	36	3,6A	0,11A	9VDC	6VDC	7,5VDC	36VDC
	24	3,2A	0,16A				
	12	3,2A	0,32A				
	12	1,2A	0,32A	9VDC	6VDC	7,5VDC	18VDC
	24	0,6A	0,16A	18VDC	12VDC	13,5VDC	32VDC

Notes : 1, Nominal current and coil resistance are measured at +20°C. 2, Differences of coil resistance are  $\pm 10\%$ ,  
3, Performance characteristic coil temperature is measured at +20°C.

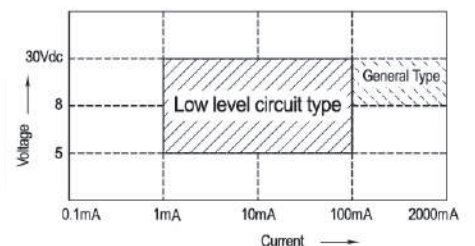
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVR600
Max. Continuous current (wire size 185mm <sup>2</sup> ×2)		600A
Max. switching current		600A
Max. switching voltages		900VDC
Contact Rating switching voltages		12~900VDC
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min.		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





# DC HIGH VOLTAGE EV RELAY

## EVR600



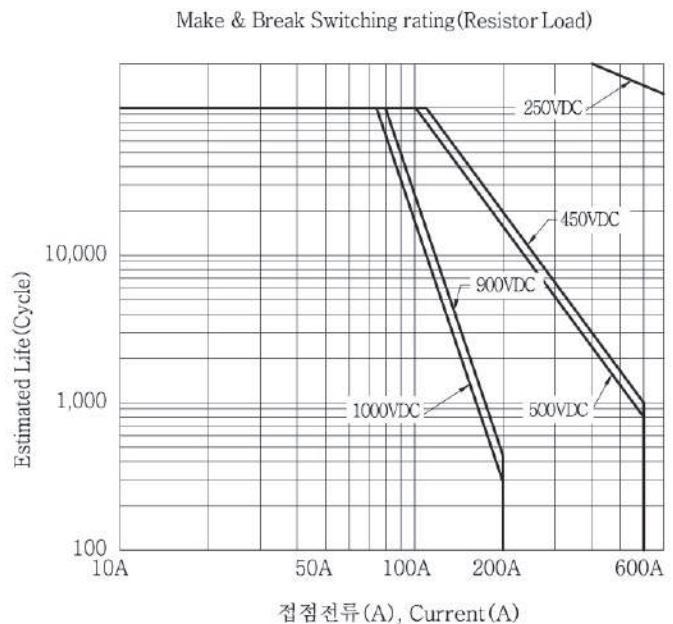
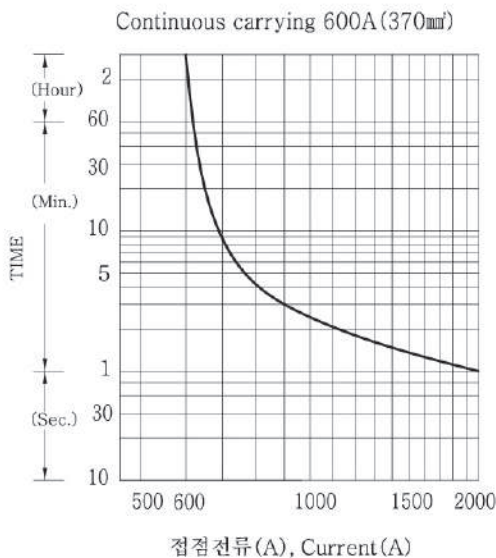
EVR600

### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	450VDC 600A	$1 \times 10^3$
		250VDC 600A	$1 \times 10^5$
Initial insulation resistance			Min. 100mΩ 500VDC
Initial breakdown voltage	Between open contacts		3500VAC 60 Sec. 5mA
	Between contacts & coil		3500VAC 60 Sec. 5mA
Operate time (at 20°C)			Max. 30ms
Release time (at 20°C)			Max. 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 2000Hz
	Destructive		196 % {20G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			920g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)
- 전기적 수명 곡선  
(Estimated Switching Ratings)



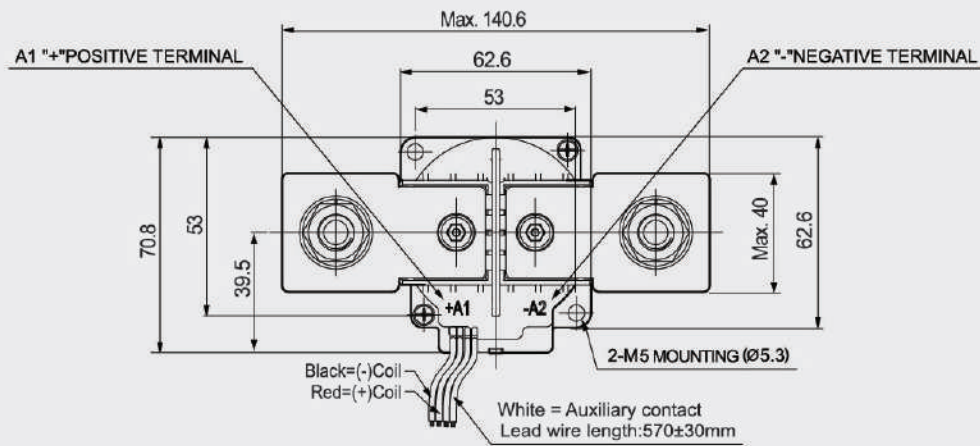
# DC HIGH VOLTAGE EV RELAY

# EVR600

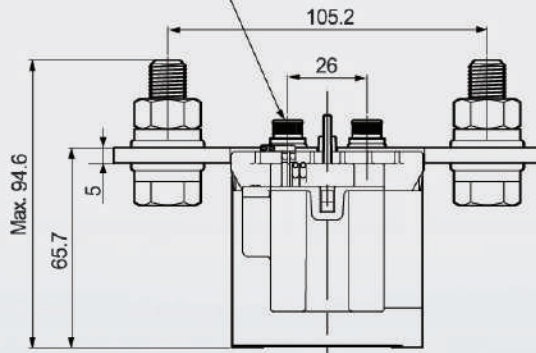


## ▶ 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0



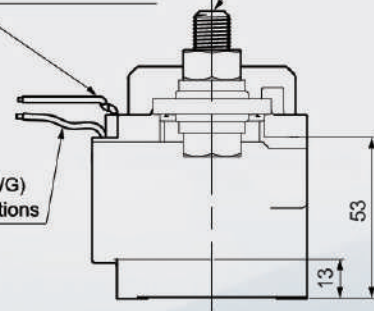
M6 Hex Socket Head Cap Screw



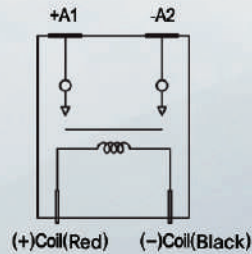
M12X40 MAIN TERMINALS TO BE TIGHTENED WITHIN THE RANGE 24.3~30.8Nm(238~302Kgf.cm)

Lead Wire (22 AWG) for Aux. Connections

Lead Wire (22 AWG) for Aux. Connections

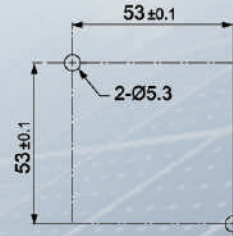


Schematic (Top View)



Main terminals have polarities (+) and (-)

Mounting Dimensions



TO BE TIGHTENED WITHIN THE RANGE 3.1~4.0Nm(30.8~39.2Kgf.cm)

HERMETIC SEALED DC CONTACTOR

# EVH400

(1500Vdc)



EVH400

▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

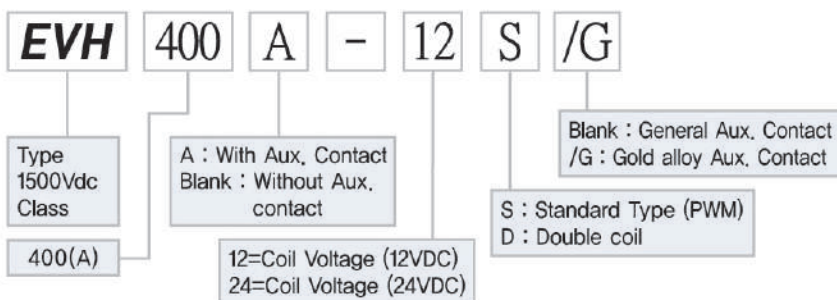
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V) min.	Max. voltage (V)	Remark
12S	12V	2,6A	0,45A	9VDC	6VDC	7,5VDC	18VDC	PWM economizer
24S	24V	1,4A	0,20A	18VDC	12VDC	15,0VDC	32VDC	
AS	12~36V	2,6A	0,15~0,45A	9VDC	6VDC	7,5VDC	36VDC	
12D	12V	4,4A	0,4A	9VDC	6VDC	7,5VDC	18VDC	Double coil economizer
24D	24V	2,6A	0,3A	18VDC	12VDC	15,0VDC	32VDC	

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

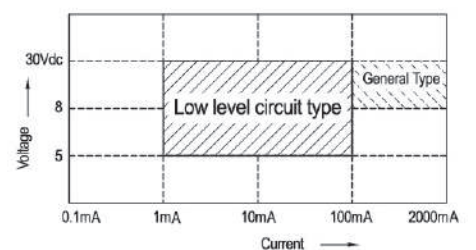
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVH400
Max. Continuous current (wire size 300mm <sup>2</sup> )		400A
Max. switching current		500VDC 900A
		1000VDC 600A
Contact rating switching voltages		12~1500VDC
Max. cut-off current		400VDC 2000A 10 Ops.
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max. (Low level circuit type)		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## HERMETIC SEALED DC CONTACTOR

# EVH400

## (1500Vdc)

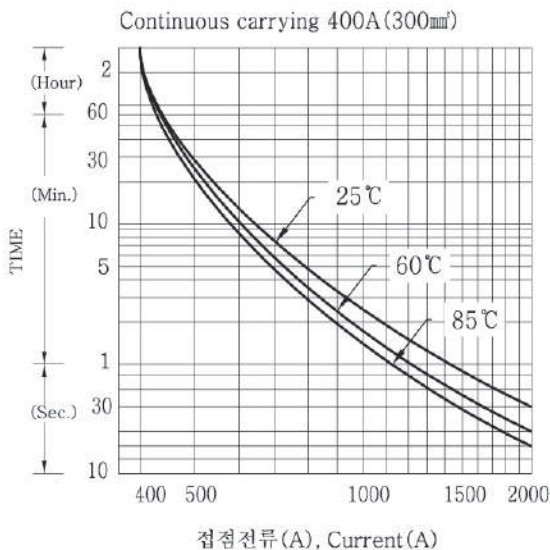


### ▶ 성능 (Characteristics)

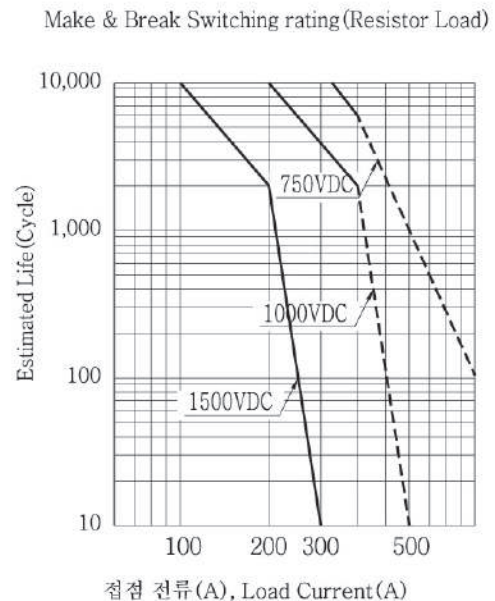
Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	750VDC 400A	$6 \times 10^3$
		1000VDC 400A	$1 \times 10^3$
		1000VDC 200A	$1 \times 10^4$
	1500VDC 200A	$2 \times 10^3$	
Initial insulation resistance			Min, 200m $\Omega$ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 40ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 500Hz
	Destructive		196 % {20G} 80 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight	PWM		950g
	Double coil		1000g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)



- 전기적 수명 곡선  
(Estimated Switching Ratings)



HERMETIC SEALED DC CONTACTOR

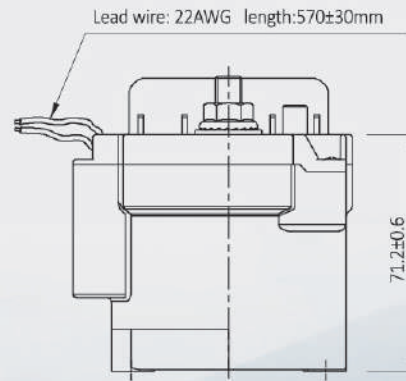
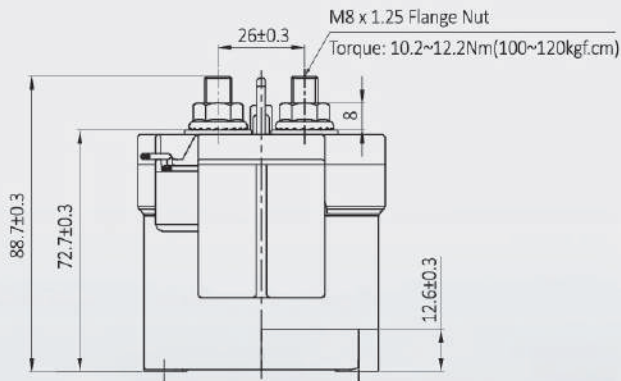
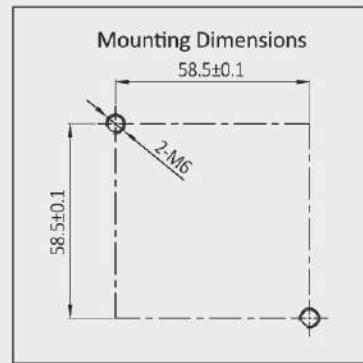
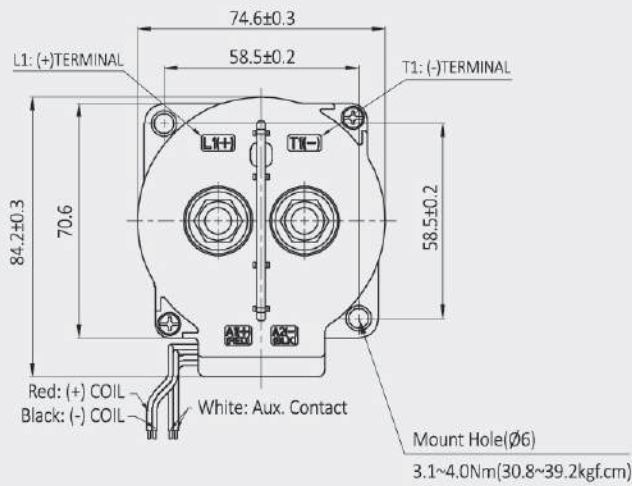
# EVH400

(1500Vdc)

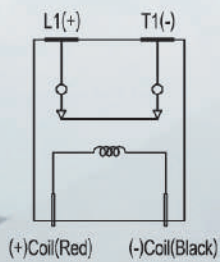


EVH400

▶ 외형치수도 (Dimension in mm)



Schematic (Top View)



Main terminals have polarities (+) and (-)

## HERMETIC SEALED DC CONTACTOR

# EVH600

## (1500Vdc)



▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

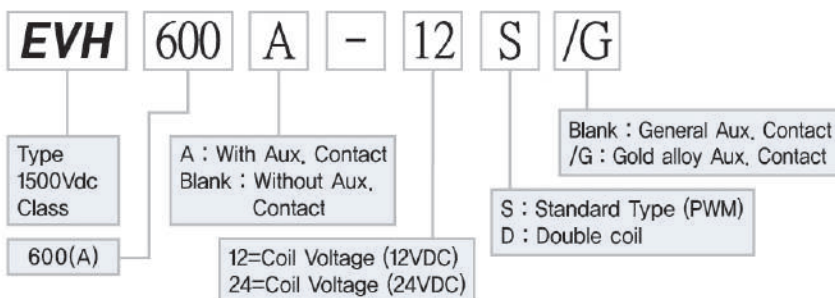
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V) min.	Max. voltage (V)	Remark
12S	12V	2,8A	0,5A	9VDC	6VDC	7,5VDC	18VDC	PWM economizer
24S	24V	1,4A	0,20A	18VDC	12VDC	15,0VDC	32VDC	
AS	12~36V	2,8A	0,15~0,5A	9VDC	6VDC	7,5VDC	36VDC	
12D	12V	4,6A	0,58A	9VDC	6VDC	7,5VDC	18VDC	Double coil economizer
24D	24V	2,9A	0,29A	18VDC	12VDC	15,0VDC	32VDC	

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ .  
3. Performance characteristic coil temperature is measured at +20°C.

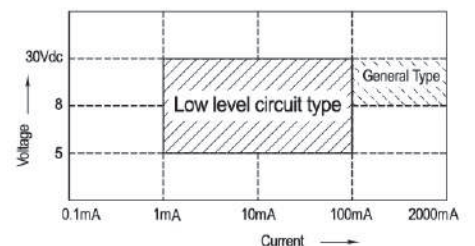
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVH600
Max. Continuous current (wire size 185mm <sup>2</sup> ×2)		600A
Max. switching current		500VDC 900A
		1000VDC 600A
Contact rating switching voltages		12~1500VDC
Max. cut-off current		400VDC 2000A 10 Ops.
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max. (Low level circuit type)		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





# HERMETIC SEALED DC CONTACTOR

## EVH600 (1500Vdc)



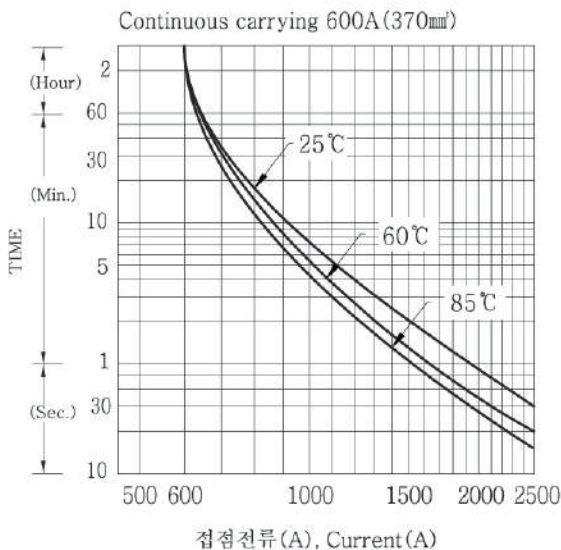
EVH600

### ▶ 성능 (Characteristics)

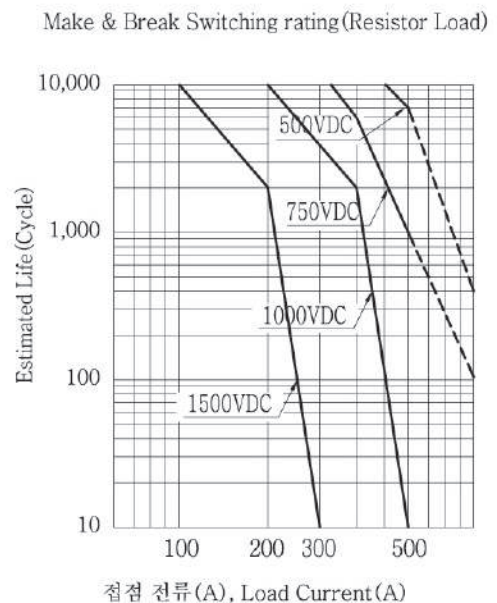
Expected life	Mechanical (Min.)		$2 \times 10^5$
	Electric (Min.) (Resistor)	500VDC 600A	$6 \times 10^3$
		750VDC 600A	$2 \times 10^3$
		1000VDC 400A	$1 \times 10^3$
		1000VDC 200A	$1 \times 10^4$
		1500VDC 200A	$2 \times 10^3$
Initial insulation resistance			Min, 200mΩ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 40ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 ٪ {20G}
	Destructive		Min 490 ٪ {50G}
Vibration resistance	Functional		98 ٪ {10G} 10 to 500Hz
	Destructive		98 ٪ {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight	PWM		1400g
	Double coil		1450g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)



- 전기적 수명 곡선  
(Estimated Switching Ratings)



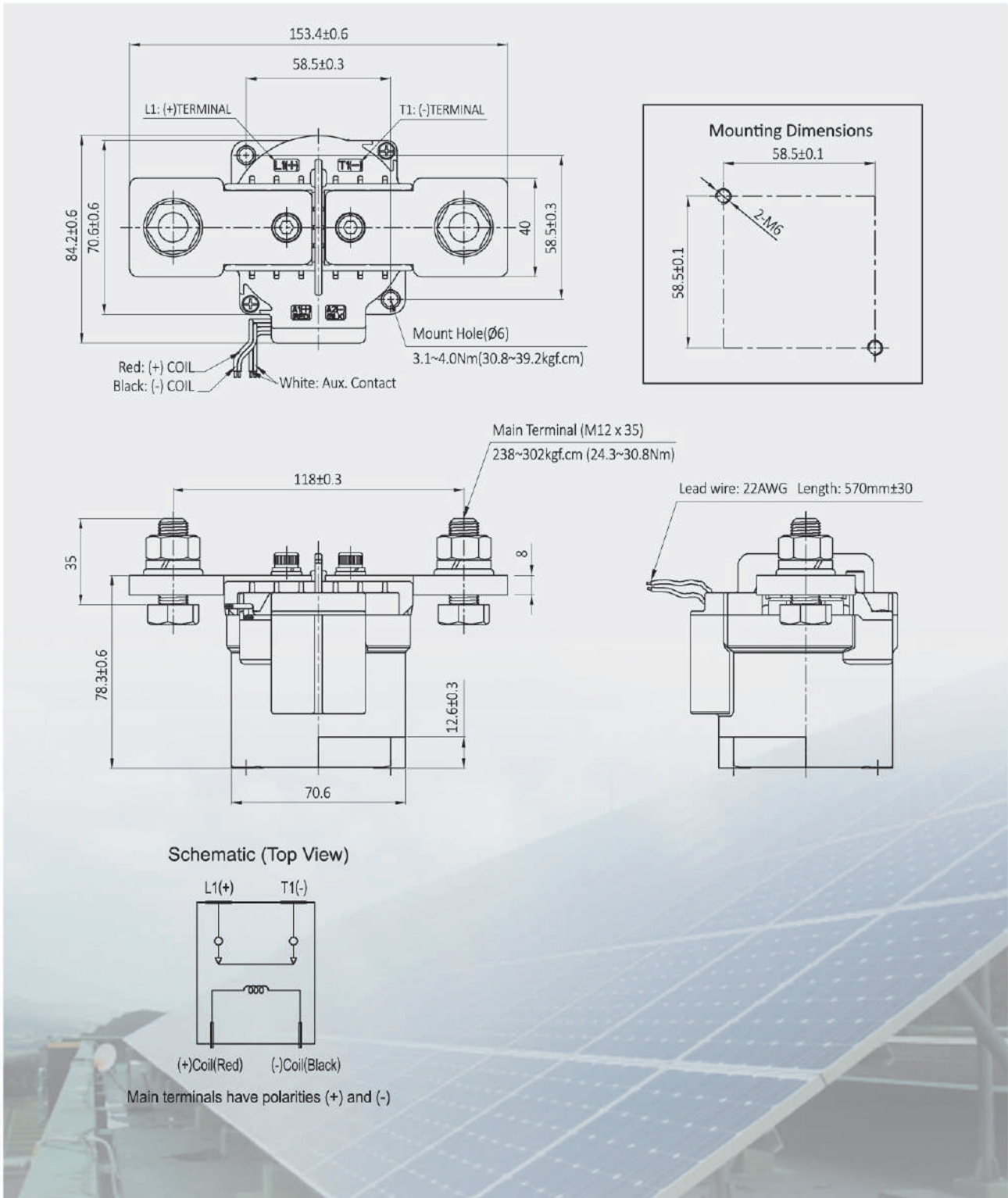
HERMETIC SEALED DC CONTACTOR

**EVH600**  
(1500Vdc)



▶ 외형치수도 (Dimension in mm)

공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0



HERMETIC SEALED DC CONTACTOR

**EVH750**  
(1500Vdc)



EVH750

▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

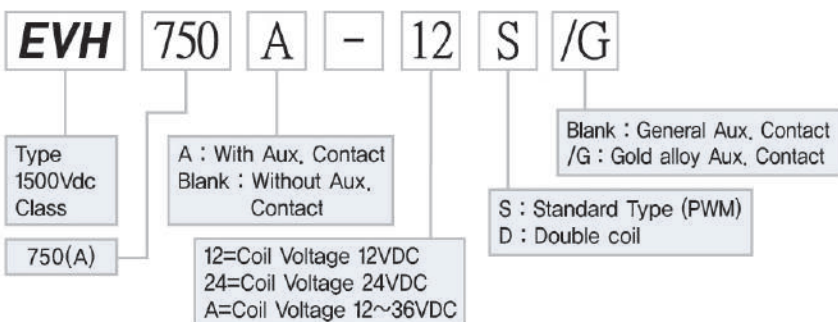
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)	Remark
12S	12V	2,3A	0,45A	9VDC	6VDC	7,5VDC	18VDC	PWM economizer
24S	24V	1,1A	0,16A	18VDC	12VDC	15,0VDC	32VDC	
AS	12~36V	3,8A	0,15~0,4A	9VDC	6VDC	7,5VDC	36VDC	
12D	12V	4,2A	0,55A	9VDC	6VDC	7,5VDC	18VDC	Double coil economizer
24D	24V	2,3A	0,35A	18VDC	12VDC	15,0VDC	32VDC	

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

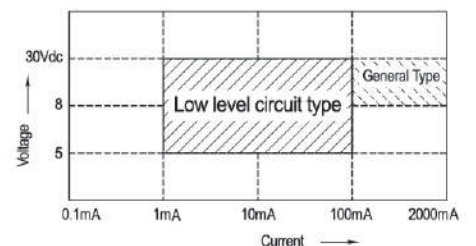
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVH750
Max. Continuous current (wire size 480mm <sup>2</sup> )		750A
Max. switching current		1000VDC 1000A
		1500VDC 800A
Contact rating switching voltages		12~1500VDC
Max. cut-off current		350VDC 2000A 10 Ops.
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max. (Low level circuit type)		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## HERMETIC SEALED DC CONTACTOR

# EVH750 (1500Vdc)

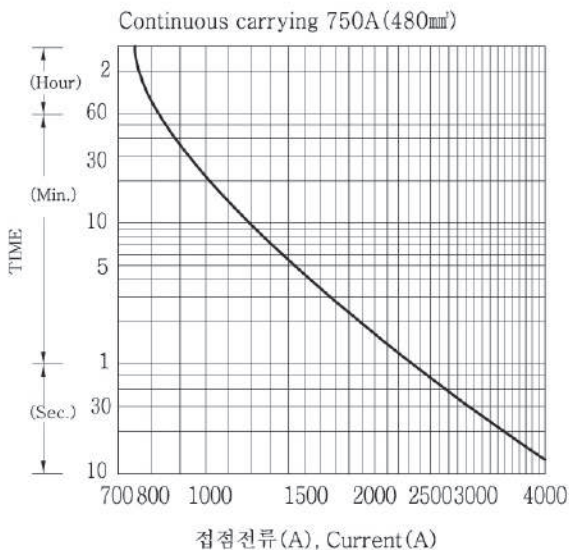


### ▶ 성능 (Characteristics)

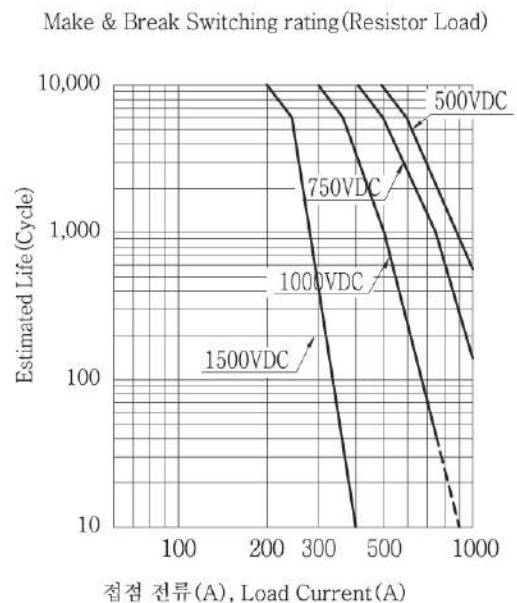
Expected life	Mechanical (Min.)		$2 \times 10^5$
	Electric (Min.) (Resistor)	500VDC 750A	$2 \times 10^3$
		750VDC 500A	$2 \times 10^3$
		1000VDC 500A	$1 \times 10^3$
		1000VDC 320A	$6 \times 10^3$
		1500VDC 250A	$6 \times 10^3$
Initial insulation resistance			Min, 200mΩ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 50ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 10 to 500Hz
	Destructive		98 % {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			1200g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)



- 전기적 수명 곡선  
(Estimated Switching Ratings)



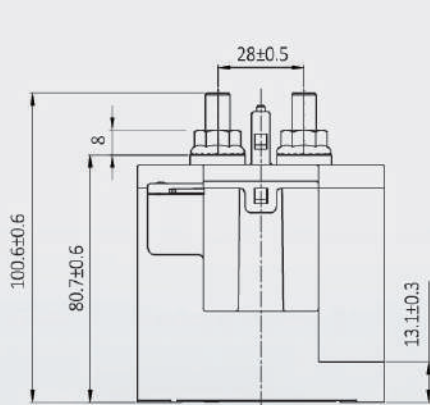
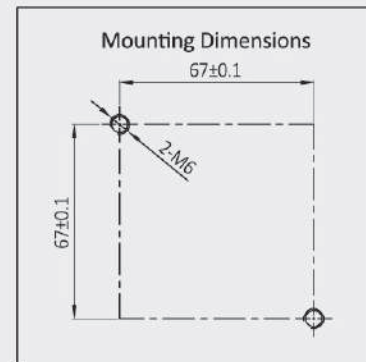
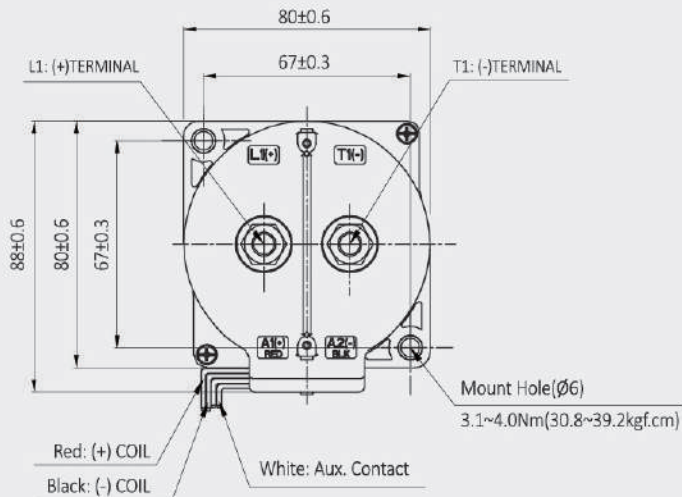
# HERMETIC SEALED DC CONTACTOR

# EVH750 (1500Vdc)

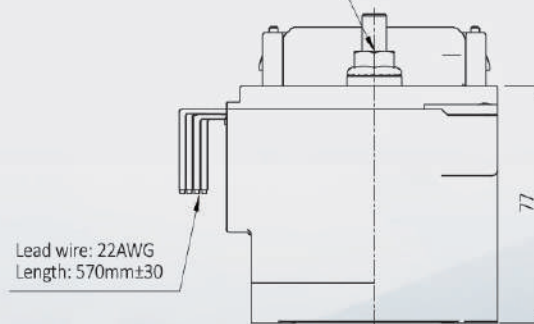


EVH750

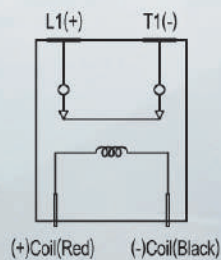
## ▶ 외형치수도 (Dimension in mm)



Main Terminal (M8 x 1.25) / Flange Nut  
Torque: 10.2~12.2Nm (100~120kgf.cm)



### Schematic (Top View)



Main terminals have polarities (+) and (-)

## HERMETIC SEALED DC CONTACTOR (Bi-directional DC Contactor)

# EVHB100 (1250Vdc)



- ▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System  
Fuel Cell Vehicle, etc.

### ▶ 코일정격 (Magnet coil ratings)

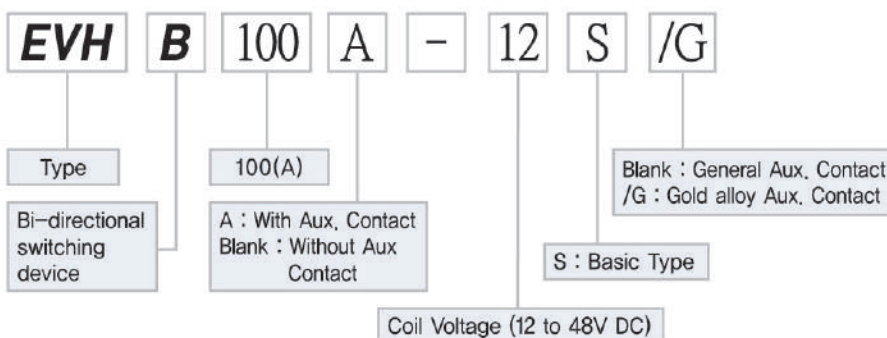
Nominal voltage(V)	Item	Nominal Coil current (mA)	Coil resistance (Ω)	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Max. voltage (V)	Coil power(W) dissipation
DC	12	530	22,8	75%	10%	130%	6,2 ~ 6,5
	24	260	92,5				
	48	130	370				

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ .  
3. Performance characteristic coil temperature is measured at +20°C.

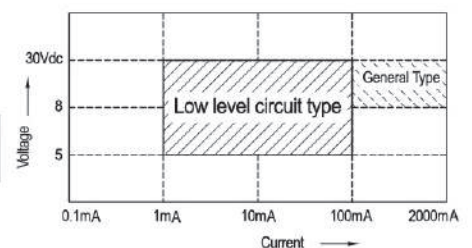
### ▶ 접점정격 (Contact ratings)

Item	Type	1Pole Resistor load
		EVHB100
Max. Continuous current (wire size 50mm <sup>2</sup> )		100A
Max. switching voltages		1250VDC 40A
Contact Rating switching voltages		12~1250VDC
Max. cut-off current		350VDC 2000A 1 Ops
Voltage drop across contacts per 20A		20mV Max. (At 5VDC)
Min. permissible load		12V DC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC/ 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max <sup>o</sup>		0,1A 30VDC
Gold alloy Aux. Contacts Min.		1mA 5VDC

### ▶ 주문방법 (Ordering information)



Permissible load of Aux. contact





HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

**EVHB100**  
(1250Vdc)



EVHB100

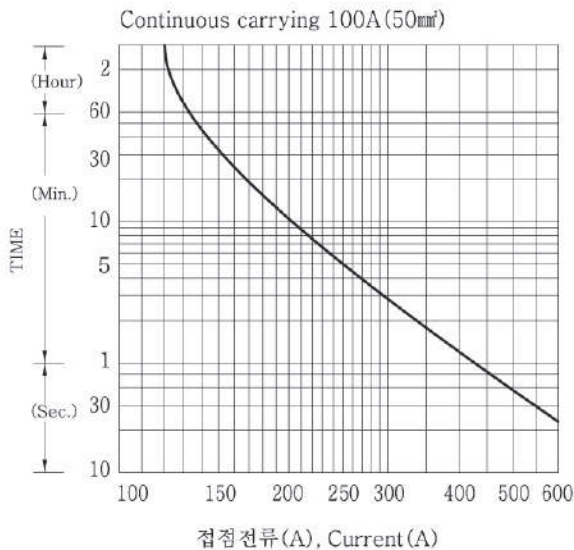
▶ 성능 (Characteristics)

Initial insulation resistance		Min, 100mΩ 1000VDC
Expected life	Mechanical (Min.)	
	Electric (Min.) (Resistor)	750VDC 100A
		800VDC 80A
		1000VDC 60A
1250VDC 40A		
Initial breakdown voltage	Between open contacts	4500VAC 60 Sec, 10mA
	Between contacts & coil	3500VAC 60 Sec, 10mA
Operate time (at 20°C)		Max, 25ms
Release time (at 20°C)		Max, 10ms
Shock resistance	Functional	Min 196 % {20G}
	Destructive	Min 490 % {50G}
Vibration resistance	Functional	98 % {10G} 10 to 500Hz
	Destructive	196 % {20G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature	-40°C to +85°C
	Humidity	5 to 85% R.H.
Unit weight		180g

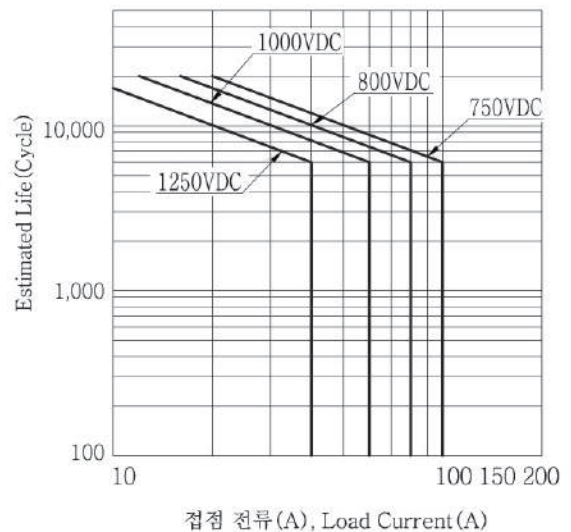
▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



Make & Break Switching rating(Resistor Load)

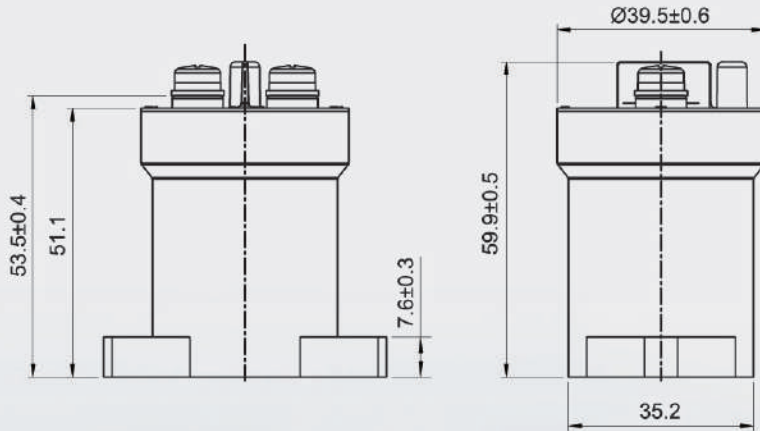
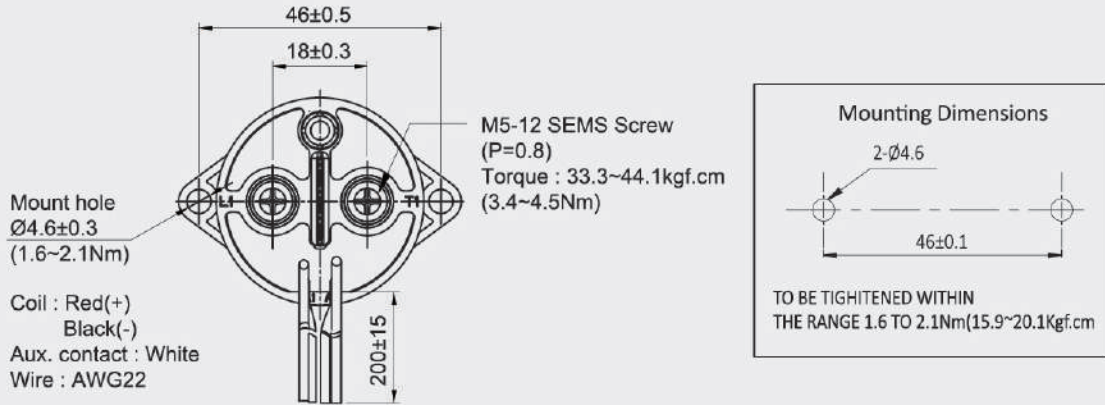


HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

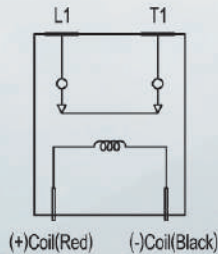
**EVHB100**  
(1250Vdc)



▶ 외형치수도 (Dimension in mm)



Schematic (Top View)



HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

**EVHB400**  
(1500Vdc)



EVHB400

▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, Fuel Cell Vehicle, etc.

▶ **코일정격 (Magnet coil ratings)**

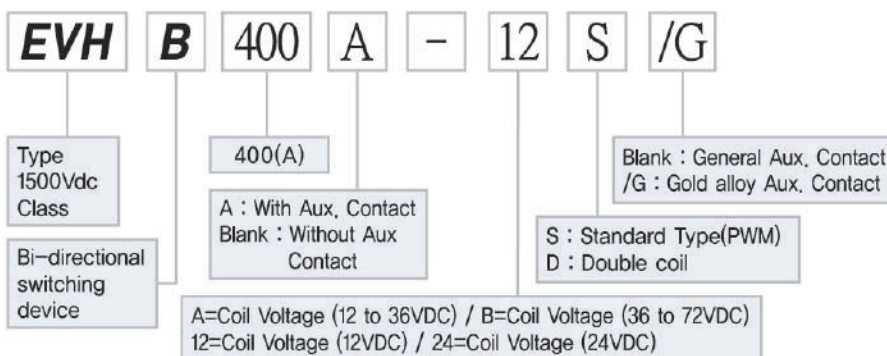
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)	Remark
12S	12V	2,6A	0,45A	9VDC	6VDC	7,5VDC	18VDC	PWM economizer
24S	24V	1,4A	0,20A	18VDC	12VDC	15,0VDC	32VDC	
AS	12~36V	2,6A	0,15~0,4A	9VDC	6VDC	7,5VDC	36VDC	
12D	12V	4,4A	0,55A	9VDC	6VDC	7,5VDC	18VDC	Double coil economizer
24D	24V	2,8A	0,33A	18VDC	12VDC	15,0VDC	32VDC	

Notes : 1, Nominal current and coil resistance are measured at +20°C. 2, Differences of coil resistance are ±10%,  
3, Performance characteristic coil temperature is measured at +20°C.

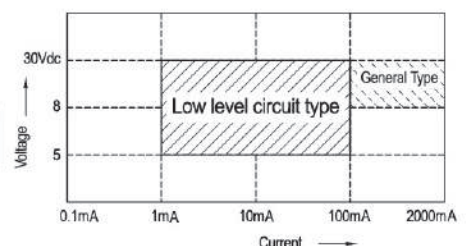
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVHB400
Max. Continuous current (wire size 300mm <sup>2</sup> )		400A
Max. switching current		600V DC 500A
		1000V DC 500A
		1500V DC 300A
Contact Rating switching voltages		12~1500VDC
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.(Low level circuit type)		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## HERMETIC SEALED DC CONTACTOR (Bi-directional DC Contactor)

# EVHB400 (1500Vdc)



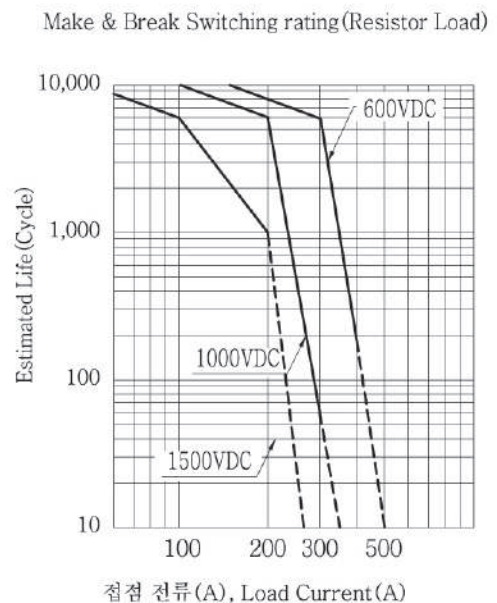
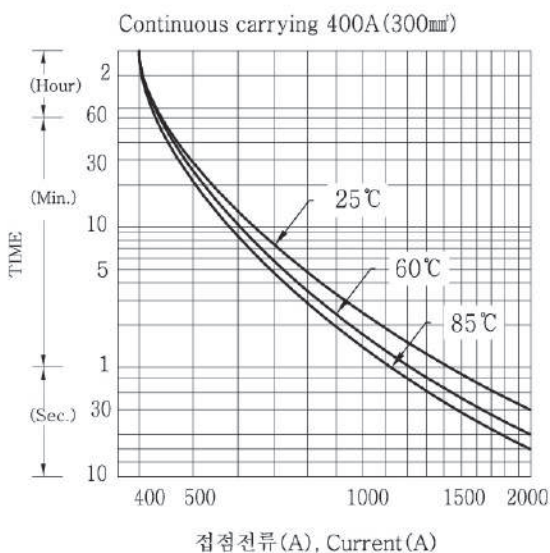
### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$2 \times 10^5$
	Electric (Min.) (Resistor)	600VDC 300A	$6 \times 10^3$
		1000VDC 200A	$6 \times 10^3$
		1500VDC 200A	$1 \times 10^3$
Initial insulation resistance			Min, 200m $\Omega$ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 40ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 10 to 500Hz
	Destructive		98 % {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			840g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



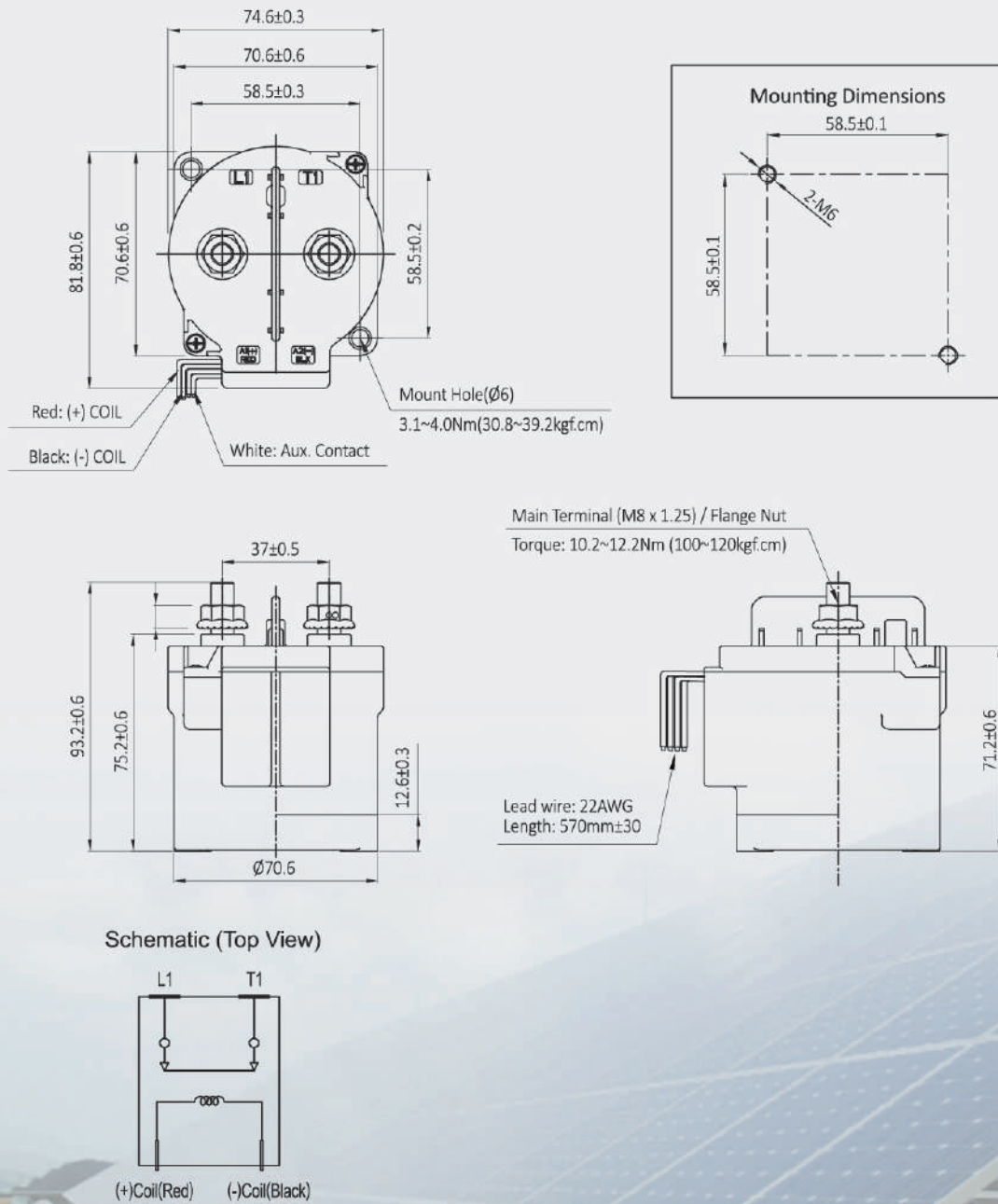
HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

**EVHB400**  
(1500Vdc)



EVHB400

▶ 외형치수도 (Dimension in mm)



# DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

## EVHB500 (H: 1500V Class)



▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System, Solar System, etc. Bi-directional switching systems and AC systems

▶ **코일정격 (Magnet coil ratings)**

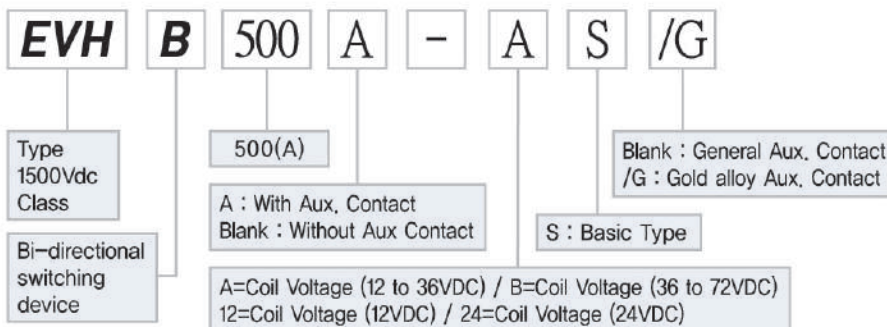
Nominal voltage(V)	Item	Inrush Coil current 100ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)
B	72	1,3A	0,08A	32VDC	18VDC	22VDC	95VDC
	60	1,1A	0,08A				
	36	1,0A	0,12A				
A	36	3,8A	0,10A	9VDC	6VDC	7,5VDC	36VDC
	24	1,8A	0,16A				
	12	1,4A	0,35A				
	12	1,4A	0,32A	9VDC	6VDC	7,5VDC	18VDC
	24	1,1A	0,16A	18VDC	12VDC	13,5VDC	32VDC

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ . 3. Performance characteristic coil temperature is measured at +20°C.

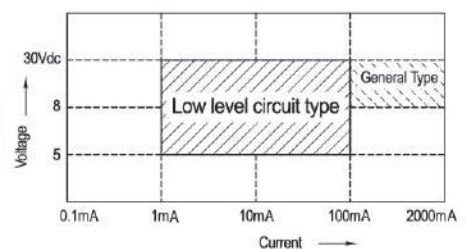
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load	
		EVHB500	
Continuous current (wire size 325mm <sup>2</sup> )		500A	
Max. switching current		750VDC 500A	UL Certification
		1000VDC 300A	
		1500VDC 100A	
Max. switching voltages		1500VDC/1000VAC	
Contact Rating switching voltages		12~1500VDC/ 1000VAC	
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)	
Min. permissible load		12VDC 0,5A	
Description		S,P On/Off (a)	
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)	
General Aux. Contact Current, Max.		2A 30VDC/ 3A 125VAC	
General Aux. Contact Current, Min.		100mA 8VDC	
Gold alloy Aux. Contact Current, Max.		0,1A 30VDC/ 0,1A 30VAC	
Gold alloy Aux. Contact Current, Min.		1mA 5VDC/1mA 5VAC	

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

EVHB500

(H: 1500V Class)



EVHB500

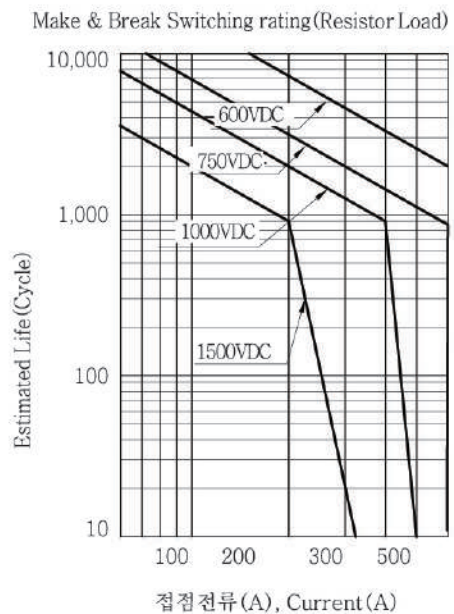
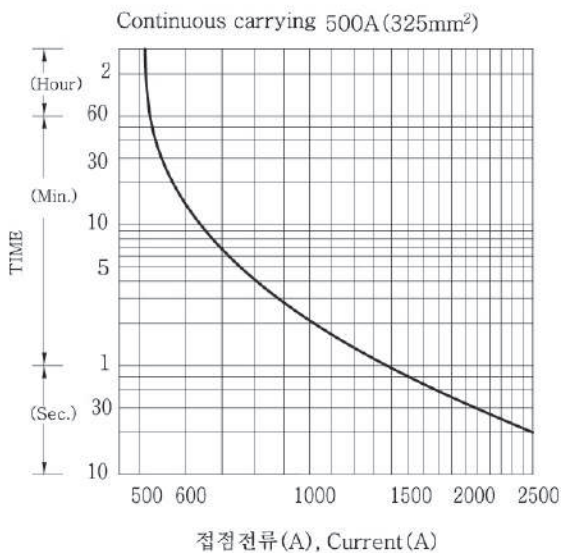
▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	750VDC(+),(-) 500A	$1 \times 10^3$
		1000VDC(+),(-) 300A	$1 \times 10^3$
		1500VDC(+),(-) 100A	$1 \times 10^3$
Initial insulation resistance			Min, 100mΩ 500VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 40ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		196 % {20G} 80 to 2000Hz
	Destructive		196 % {20G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			980g

▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

EVHB500

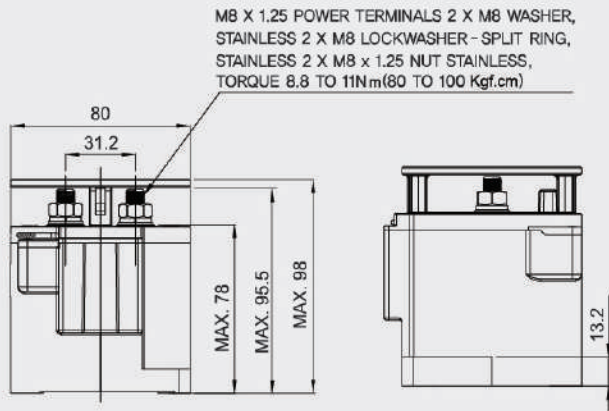
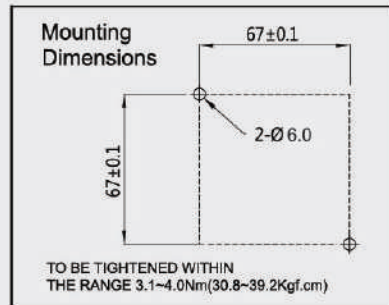
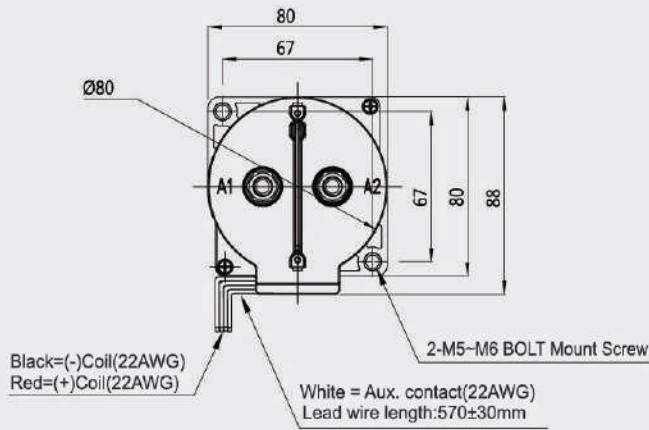
(H: 1500V Class)



공차(Tolerance) : 10mm 이하±0.3, 10~50mm ±0.6, 50mm 이상±1.0

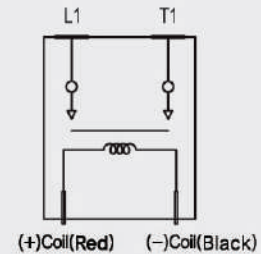
▶ 외형치수도 (Dimension in mm)

(Basic Type)

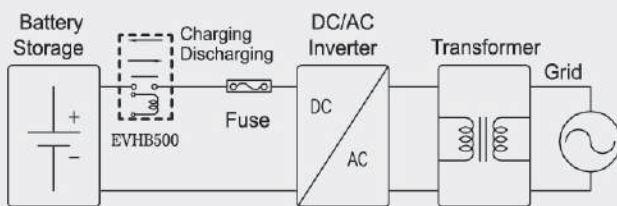


Schematic (Top View)

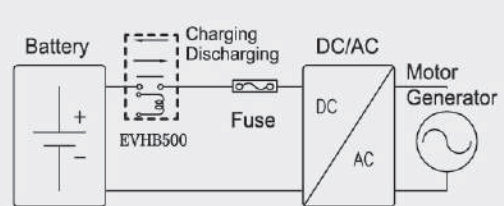
EVHB500 don't have polarity on the main contacts



▶ 응용 회로 (Application Circuit)



Battery Energy storage Systems



Electric Vehicles

**HERMETIC SEALED DC CONTACTOR**  
(Bi-directional DC Contactor)

**EVHB500H**  
(1500Vdc)



▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System, Solar System, etc. Bi-directional switching systems and AC systems.

▶ **코일정격 (Magnet coil ratings)**

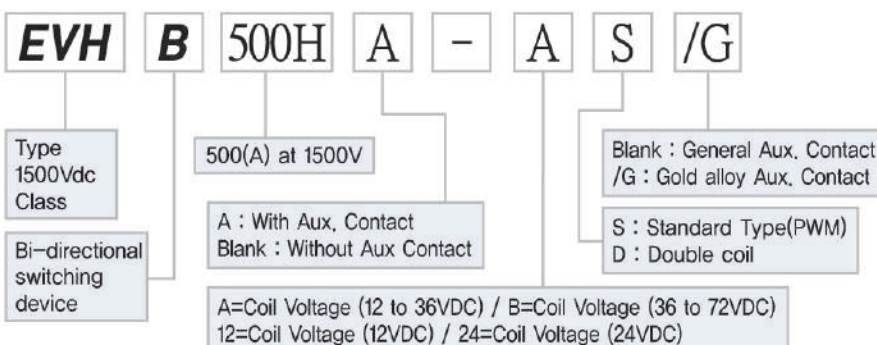
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)	Remark
12S	12V	3,0A	0,4A	9VDC	6VDC	7,5VDC	32VDC	PWM economizer
24S	24V	1,4A	0,2A	18VDC	9VDC	9,0VDC	48VDC	
AS	12~36V	3,1A	0,4~0,2A	9VDC	6VDC	7,5VDC	48VDC	
12D	12V	4,8A	0,6A	9VDC	6VDC	7,5VDC	18VDC	Double coil economizer
24D	24V	2,9A	0,35A	18VDC	12VDC	13,5VDC	32VDC	

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

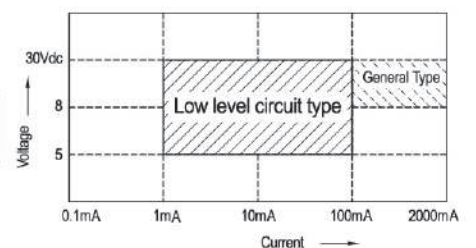
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVHB500H
Max. Continuous current (wire size 325mm <sup>2</sup> )		500A
Max. switching current		1000VDC 1000A
		1500VDC 800A
		400VDC 2000A
Max. switching voltage		1500VDC
Contact Rating switching voltages		12~1500VDC
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC/ 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.(Low level circuit type)		0,1A 30VDC/ 0,1A 30VAC
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC/1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact





## HERMETIC SEALED DC CONTACTOR (Bi-directional DC Contactor)

# EVHB500H (1500Vdc)



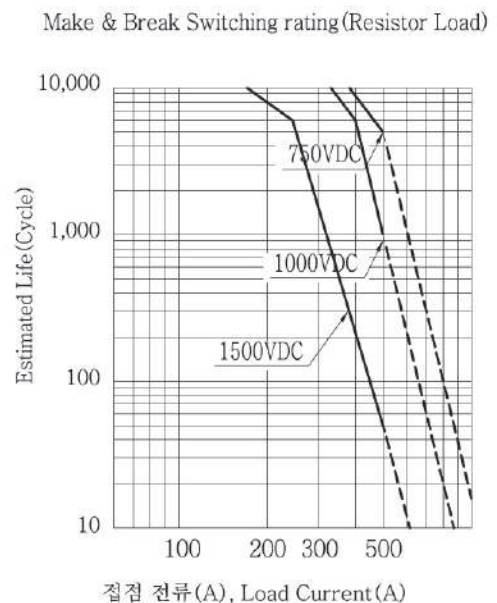
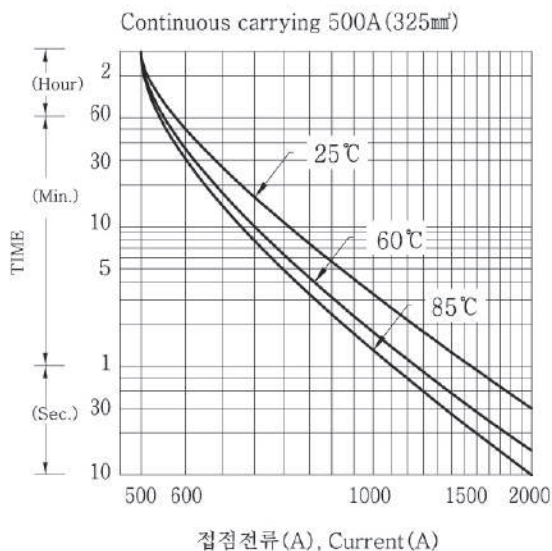
### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	1500VDC (+),(-) 150A	$6 \times 10^3$
		1500VDC (+),(-) 200A	$2 \times 10^3$
		1500VDC (+),(-) 500A	$5 \times 10$
Initial insulation resistance			Min, 200m $\Omega$ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 50ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 196 % {20G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 80 to 2000Hz
	Destructive		98 % {10G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			1300g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



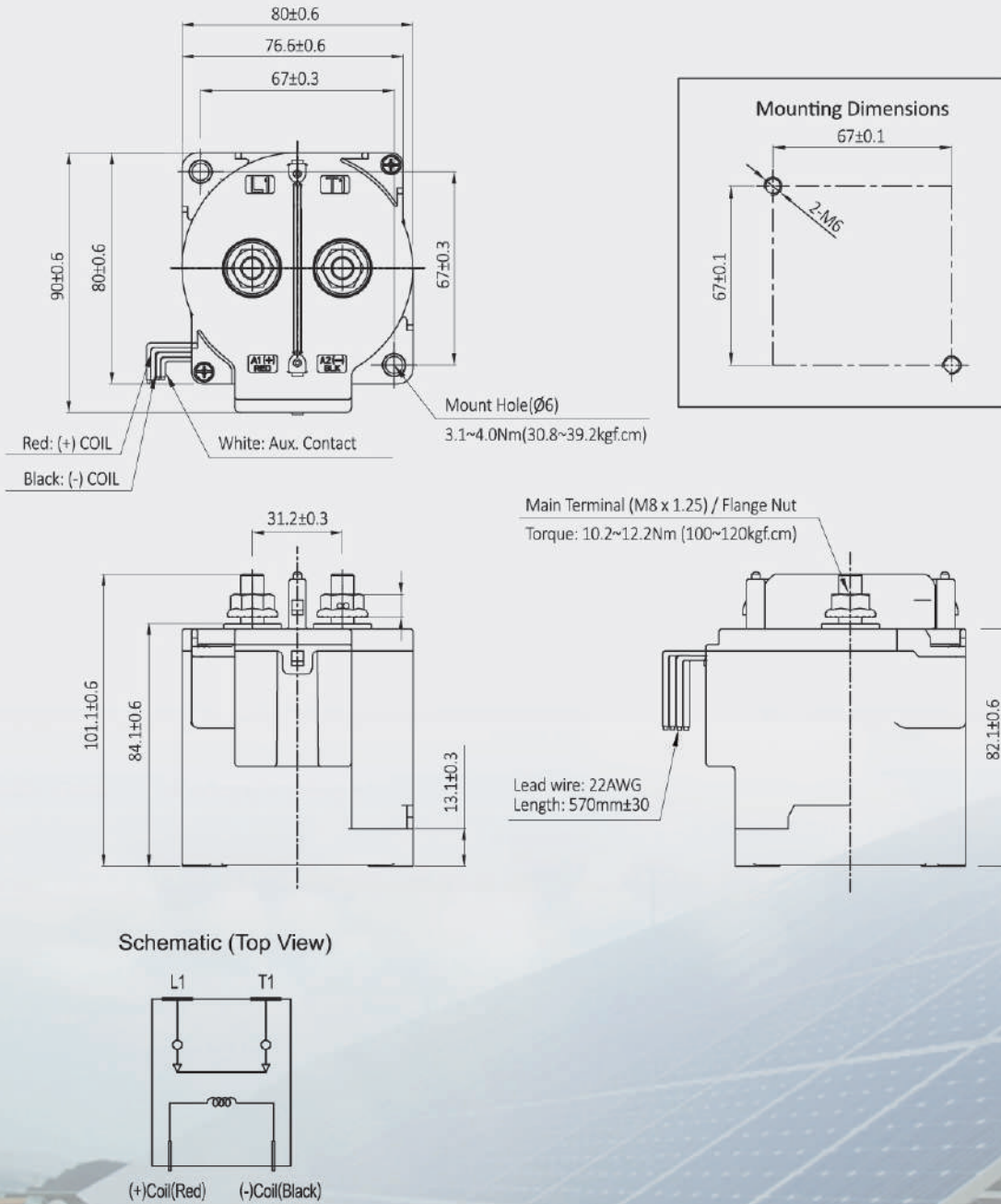
HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

**EVHB500H**  
(1500Vdc)



EVHB500H

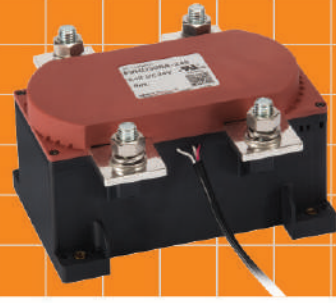
▶ 외형치수도 (Dimension in mm)



## DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

# EVHD500

(Double Switching Device)



▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, etc.  
Bi-directional switching systems and AC systems

▶ **코일정격 (Magnet coil ratings)**

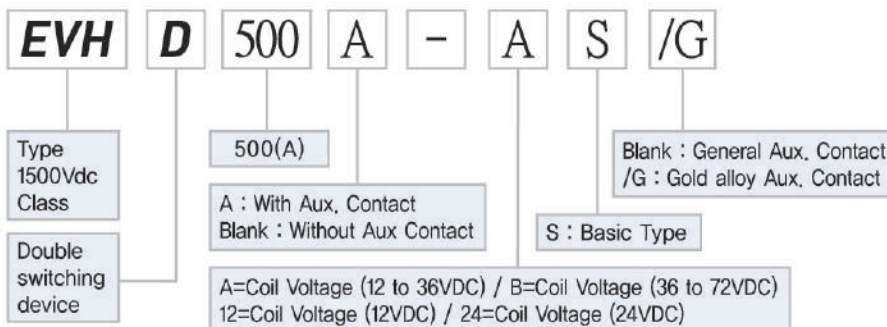
Nominal voltage(V)	Item	Inrush Coil current 150ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)
B	60	4.0A	0.2A	32VDC	18VDC	22VDC	60VDC
	48	3.8A	0.2A				
	36	3.0A	0.3A				
A	36	6.0A	0.4A	9VDC	6VDC	7.5VDC	36VDC
	24	6.0A	0.5A				
	12	6.0A	0.9A				
12		6.0A	0.9A	9VDC	6VDC	7.5VDC	18VDC
24		3.0A	0.45A	18VDC	12VDC	13.5VDC	32VDC

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ . 3. Performance characteristic coil temperature is measured at +20°C.

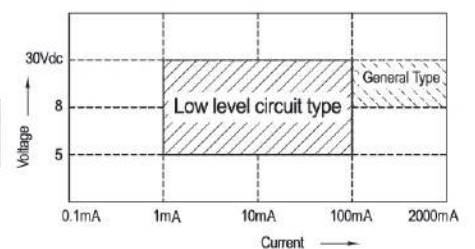
▶ **접점정격 (Contact ratings)**

Item	Type	2Pole Resistor load	
		EVHD500	
Max. Continuous current (wire size 300mm <sup>2</sup> )		500A	
Max. switching current		1000VDC 500A (Series)	UL Certification
		1500VDC 400A (Series)	
Max. switching voltages		1500VDC	
Contact Rating switching voltages		12~1500VDC/AC	
Voltage drop across contacts per 100A		30mV Max. (At 5VDC) / Pole	
Min. permissible load		12VDC 0.5A	
Description		D, P On/Off (a)	
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)	
General Aux, Contact Current, Max.		2A 30VDC / 3A 125VAC	
General Aux, Contact Current, Min.		100mA 8VDC	
Gold alloy Aux, Contacts Max.(Low level circuit type)		0.1A 30VDC / 0.1A 30VAC	
Gold alloy Aux, Contacts Min. (Low level circuit type)		1mA 5VDC / 1mA 5VAC	

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact

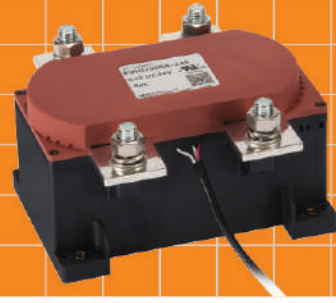




DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

EVHD500

(Double Switching Device)



EVHD500

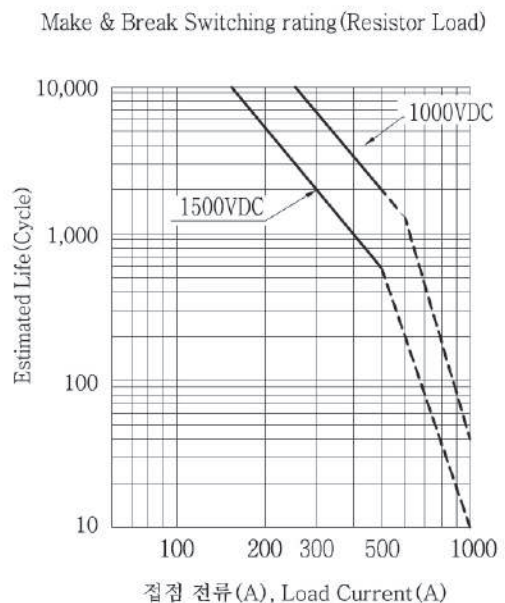
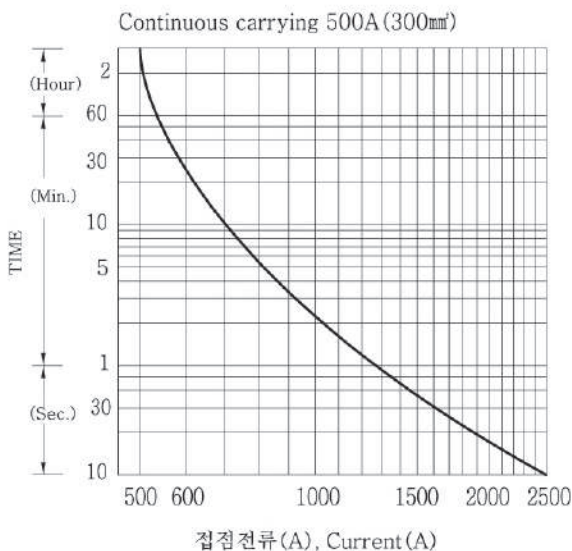
▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$2 \times 10^5$
	Electric (Min.) (Resistor)	1000VDC (+),(-) 500A	$2 \times 10^3$
		1500VDC (+),(-) 300A	$6 \times 10^3$
		1500VDC (+),(-) 400A	$1 \times 10^3$
Initial insulation resistance			Min, 200mΩ 1000VDC
Initial breakdown voltage	Between open contacts		4500V AC 60 Sec, 5mA
	Between contacts & coil		4500V AC 60 Sec, 5mA
Operate time (at 20°C)			Max, 50ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 98 % {10G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 80 to 2000Hz
	Destructive		98 % {10G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			2100g

▶ 특성곡선 (Reference data)

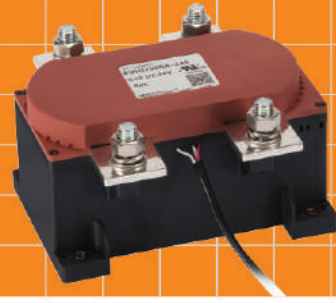
- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



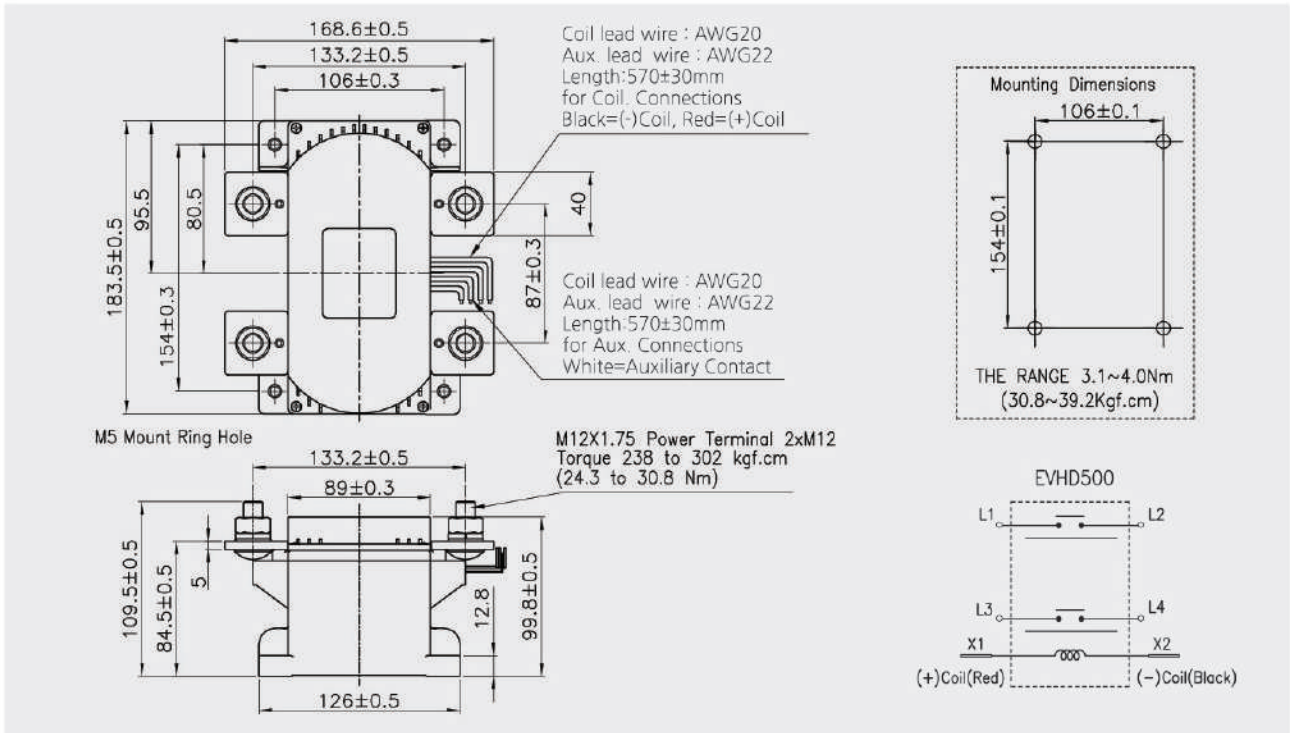
DC HIGH VOLTAGE Bi-directional SWITCHING RELAY

EVHD500  
(Double Switching Device)

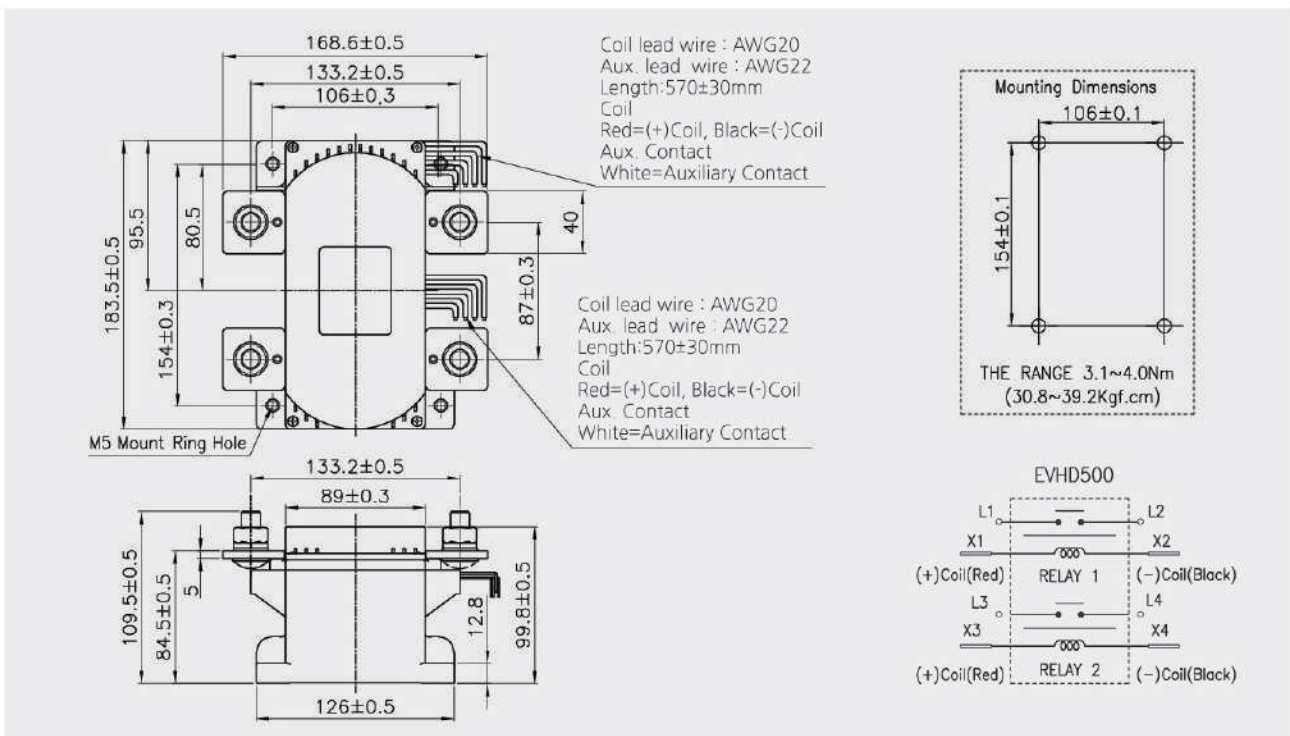


▶ 외형치수도 (Dimension in mm)

(Basic Type)

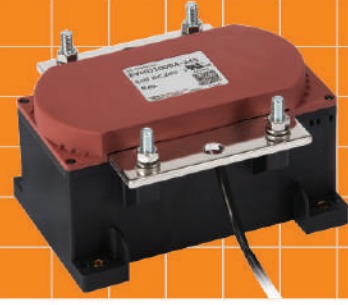


(Separation Type)



**HERMETIC SEALED DC CONTACTOR**  
(Bi-directional DC Contactor)

**EVHD1000**  
(Double Switching Device)



EVHD1000

▶ **응용분야 (Application)** : Charging System, Battery Energy Storage System, Solar System, etc.  
Bi-directional switching systems and AC systems

▶ **코일정격 (Magnet coil ratings)**

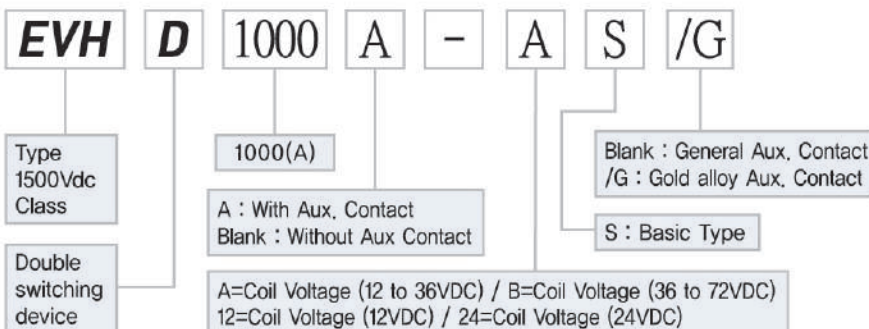
Nominal voltage(V)	Item	Inrush Coil current 100ms (Max.)	Holding Coil current	Pick-up voltage (V)max.	Drop-out voltage (V)min.	Holding voltage (V)min.	Max. voltage (V)
B	60	4.0A	0.2A	32VDC	18VDC	22VDC	60VDC
	48	3.8A	0.2A				
	36	3.0A	0.3A				
A	36	6.0A	0.4A	9VDC	6VDC	7.5VDC	36VDC
	24	6.0A	0.5A				
	12	6.0A	0.9A				
	12	6.0A	0.9A	9VDC	6VDC	7.5VDC	18VDC
	24	3.0A	0.45A	18VDC	12VDC	13.5VDC	32VDC

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%. 3. Performance characteristic coil temperature is measured at +20°C.

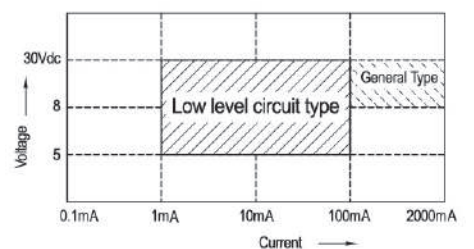
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load	
		EVHD1000	
Max. Continuous current (wire size 300mm <sup>2</sup> ×2)		1000A	
Max. switching current		250VDC 1000A	UL Certification
		400VDC 800A	
Max. switching voltages		1500VDC/1000VAC	
Contact Rating switching voltages		12~1500VDC	
Voltage drop across contacts per 100A		20mV Max. (At 5VDC)	
Min. permissible load		12VDC 0.5A	
Description		S,P On/Off (a)	
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)	
General Aux. Contact Current, Max.		2A 30VDC/ 3A 125VAC	
General Aux. Contact Current, Min.		100mA 8VDC	
Gold alloy Aux. Contacts Max.(Low level circuit type)		0.1A 30VDC/ 0.1A 30VAC	
Gold alloy Aux. Contacts Min. (Low level circuit type)		1mA 5VDC/1mA 5VAC	

▶ **주문방법 (Ordering information)**



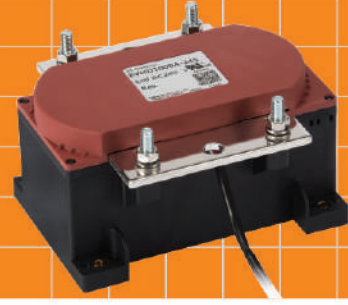
Permissible load of Aux. contact





## HERMETIC SEALED DC CONTACTOR (Bi-directional DC Contactor)

# EVHD1000 (Double Switching Device)

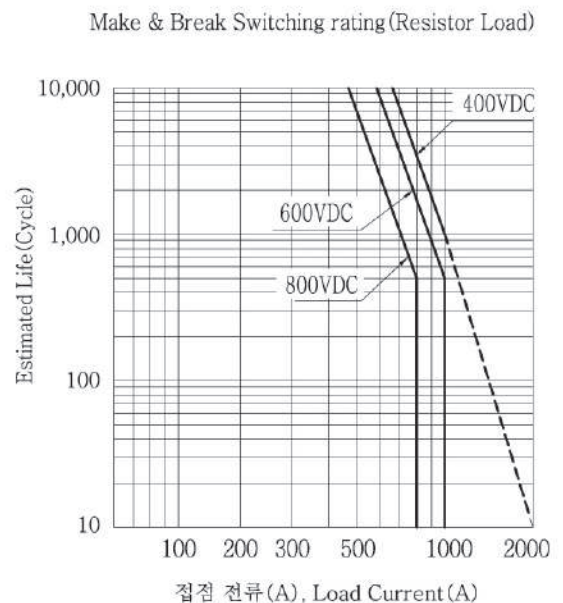
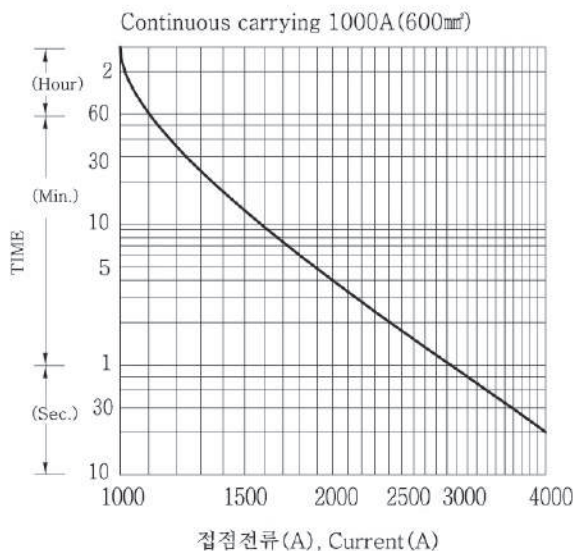


### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$2 \times 10^5$
	Electric (Min.) (Resistor)	250VDC (+),(-) 1,000A	$2 \times 10^3$
		400VDC (+),(-) 1,000A	$1 \times 10^3$
		800VDC (+),(-) 800A	100
Initial insulation resistance			Min, 200mΩ 1000VDC
Initial breakdown voltage	Between open contacts		4500VAC 60 Sec, 5mA
	Between contacts & coil		4500VAC 60 Sec, 5mA
Operate time (at 20°C)			Max, 50ms
Release time (at 20°C)			Max, 10ms
Shock resistance	Functional		Min 98 % {10G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 80 to 2000Hz
	Destructive		98 % {10G} 80 to 2000Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			2100g

### ▶ 특성곡선 (Reference data)

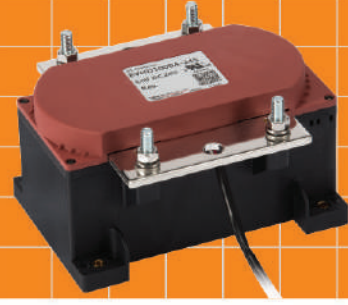
- 온도상승곡선
  - 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)
- 전기적 수명 곡선  
(Estimated Switching Ratings)



HERMETIC SEALED DC CONTACTOR  
(Bi-directional DC Contactor)

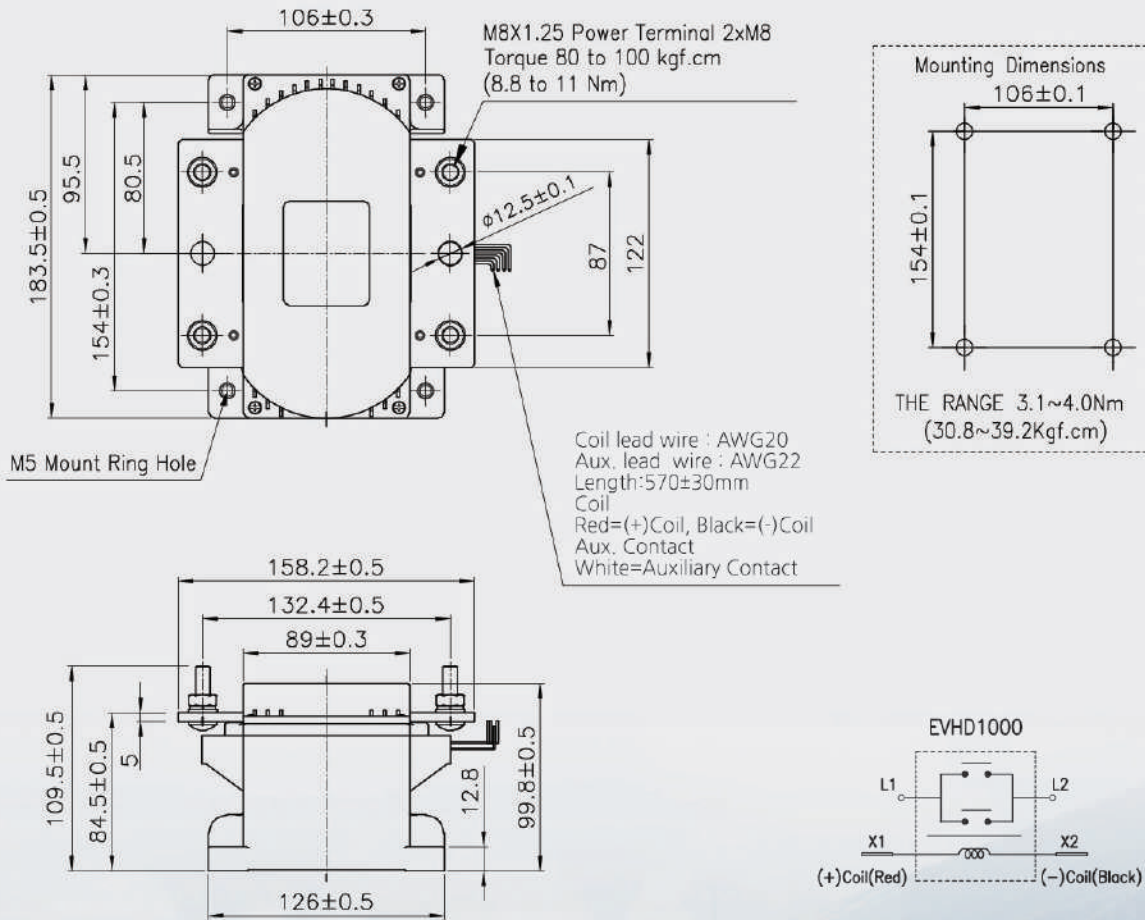
# EVHD1000

(Double Switching Device)



EVHD1000

▶ 외형치수도 (Dimension in mm)



DC HIGH VOLTAGE

## EV LATCH RELAY

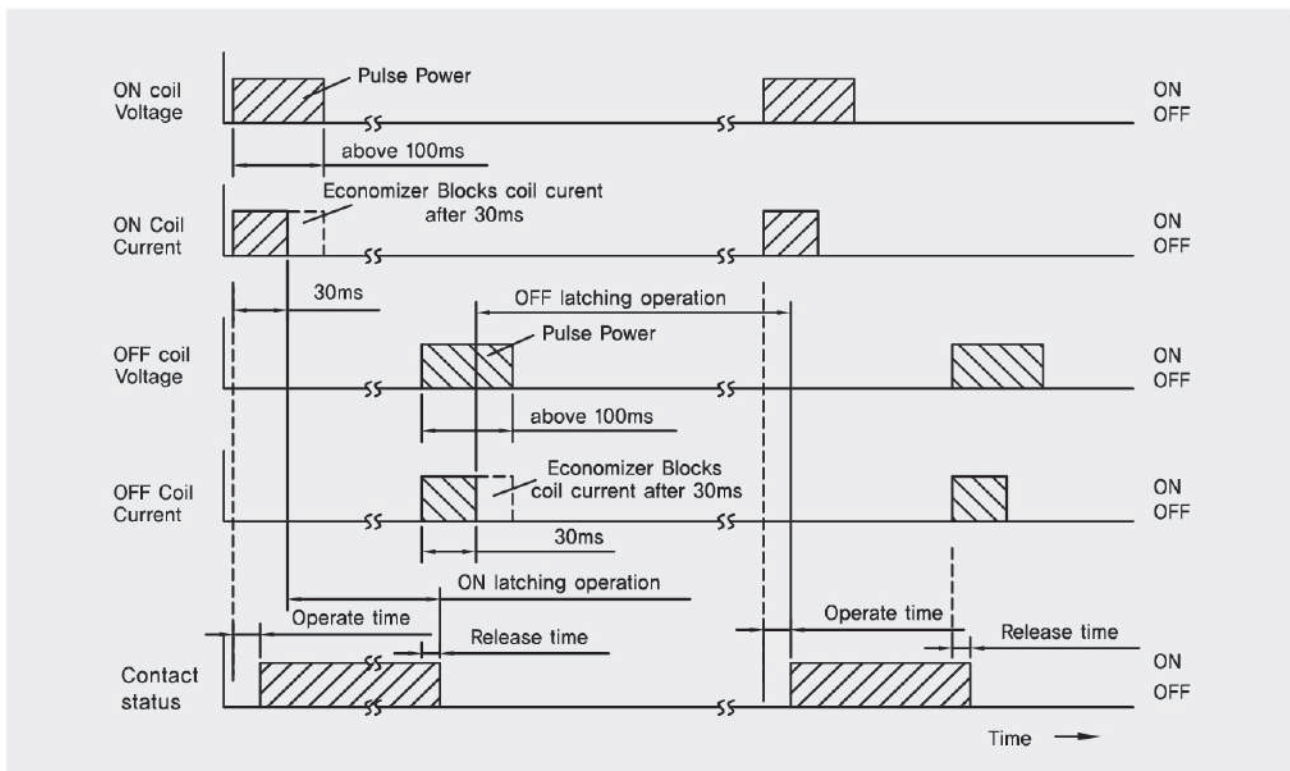


### ▶ EV LATCH Relay 특성 (EV Latch Relay characteristics)

1. EV Latch Relay는 ON과 OFF시에 30ms동안만 코일이 전력을 소모하기 때문에 에너지를 절약할 수 있습니다.
2. 코일은 상시 전력을 소모하지 않기 때문에 발열에 의한 고장을 방지합니다.
3. 전원 전압이 불안정한 사용환경에서 오동작이 없습니다.
4. 코일에 전원을 지속적으로 인가하여도 Economizer가 On/Off시에 30ms 동안만 전류를 흘리고, 그 이후에는 Coil에 전류를 차단합니다.

1. Because EV Latch relay consumes electric power only 30ms in the Coil, when main contact moves On and Off, so you can save energy.
2. Because the EV Latch relay Coils doesn't consume a electric energy at normal state, this product prevent a fault risks by high temperature.
3. When the power supply of coil is unstable, a malfunction of EV Latch relay does not occur.
4. Even if coil power is continuously supplied, the economizer blocks coil current after 30ms, so the economizer of EV Latch relay protects coil failure.

### ▶ EV Latch Relay 시간 특성 (Timing Diagram of EV Latch Relay)





# DC HIGH VOLTAGE EV LATCH RELAY

## EVL250



EVL250

▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System, Solar System, Golf Car, Fuel Cell Vehicle, Helicopter, etc.

▶ **코일정격 (Magnet coil ratings)**

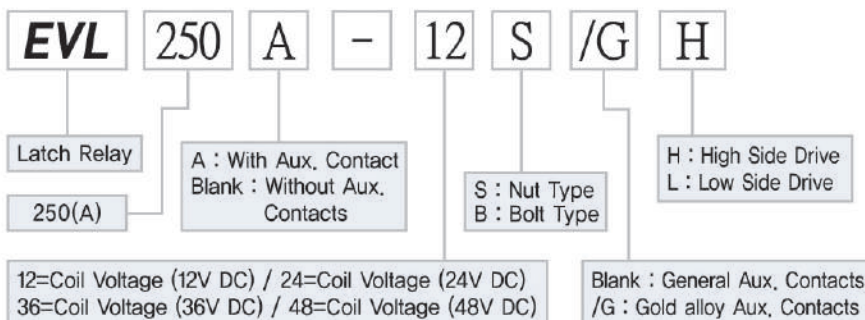
Nominal voltage(V)	Item	Inrush Coil current (Max.)	Pick-up Holding Time (ms)	Pick-up voltage (V)	Drop-out voltage (V)	Drop-out Time (ms)	Max. voltage (V)
12		2,5A	50~100ms	9,0VDC	9,0VDC	50~100ms	15VDC
24		1,5A	50~100ms	18,0VDC	18,0VDC	50~100ms	30VDC
36		1,0A	50~100ms	27,0VDC	27,0VDC	50~100ms	45VDC
48		0,75A	50~100ms	36,0VDC	36,0VDC	50~100ms	60VDC

Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are ±10%.  
3. Performance characteristic coil temperature is measured at +20°C.

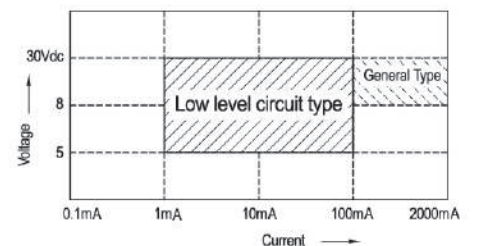
▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVL250
Max. Continuous current (wire size 185mm <sup>2</sup> )		300A
Max. switching current		250A
Max. switching voltages		1000VDC 80A
Contact Rating switching voltages		12~1000VDC
Max. cut-off current		300VDC 1000A 10 Ops
		300VDC 1500A 3 Ops
C-R load (charging)		500V 1500A 4,000 Ops
		500V 500A 30,000 Ops
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux. Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux. Contact Current, Min.		100mA 8VDC
Gold alloy Aux. Contacts Max.		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux. Contacts Min.		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**



Permissible load of Aux. contact



# DC HIGH VOLTAGE EV LATCH RELAY

## EVL250

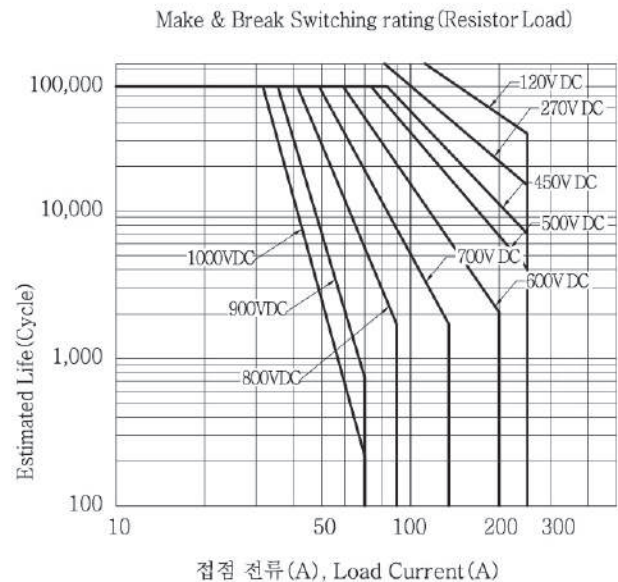
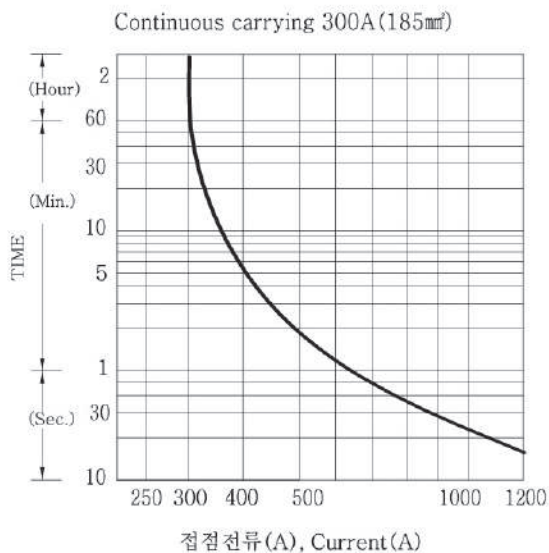


### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	450VDC 250A	$6 \times 10^3$
250VDC 250A		$1 \times 10^4$	
Initial insulation resistance			Min. 100mΩ 500VDC
Initial breakdown voltage	Between open contacts		3500VAC 60 Sec. 5mA
	Between contacts & coil		3500VAC 60 Sec. 5mA
Operate time (at 20°C)			Max. 10ms
Release time (at 20°C)			Max. 10ms
Shock resistance	Functional		Min 147 % {15G}
	Destructive		Min 490 % {50G}
Vibration resistance	Functional		98 % {10G} 10 to 500Hz
	Destructive		98 % {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			460g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)
- 전기적 수명 곡선  
(Estimated Switching Ratings)



# DC HIGH VOLTAGE EV LATCH RELAY

## EVL250

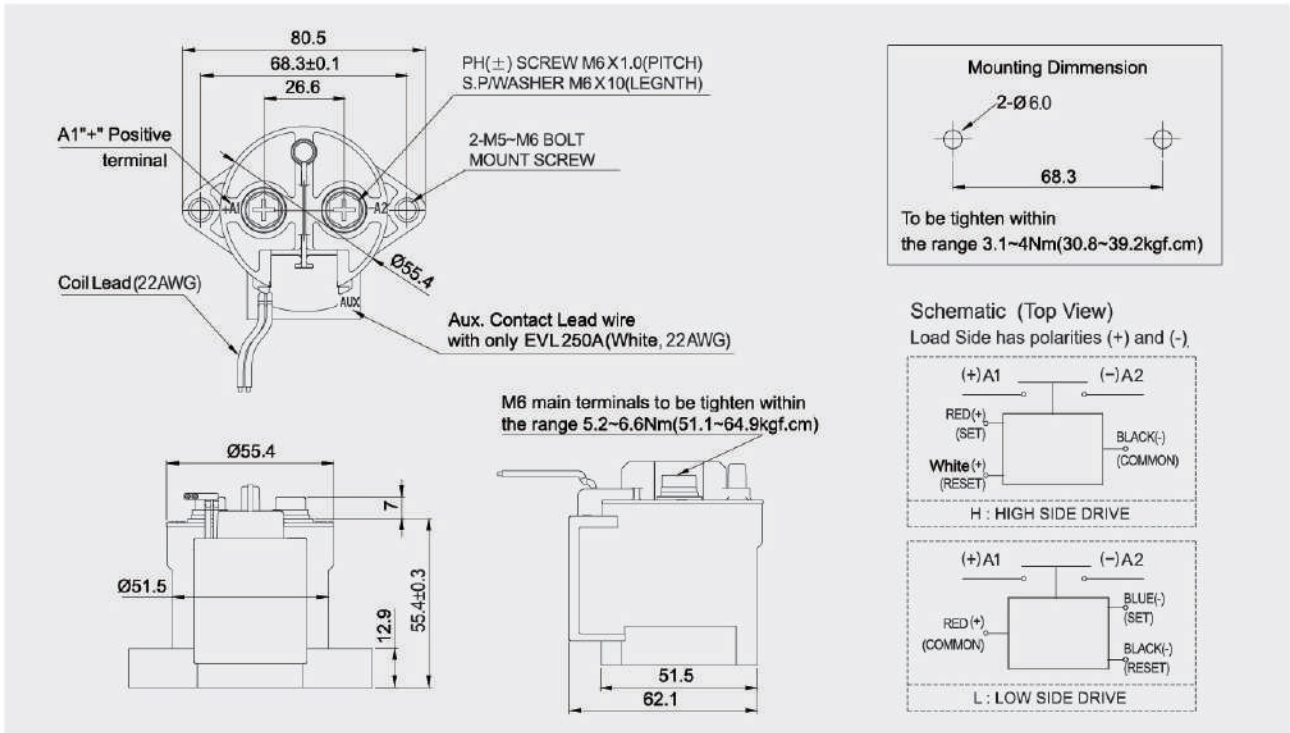


EVL250

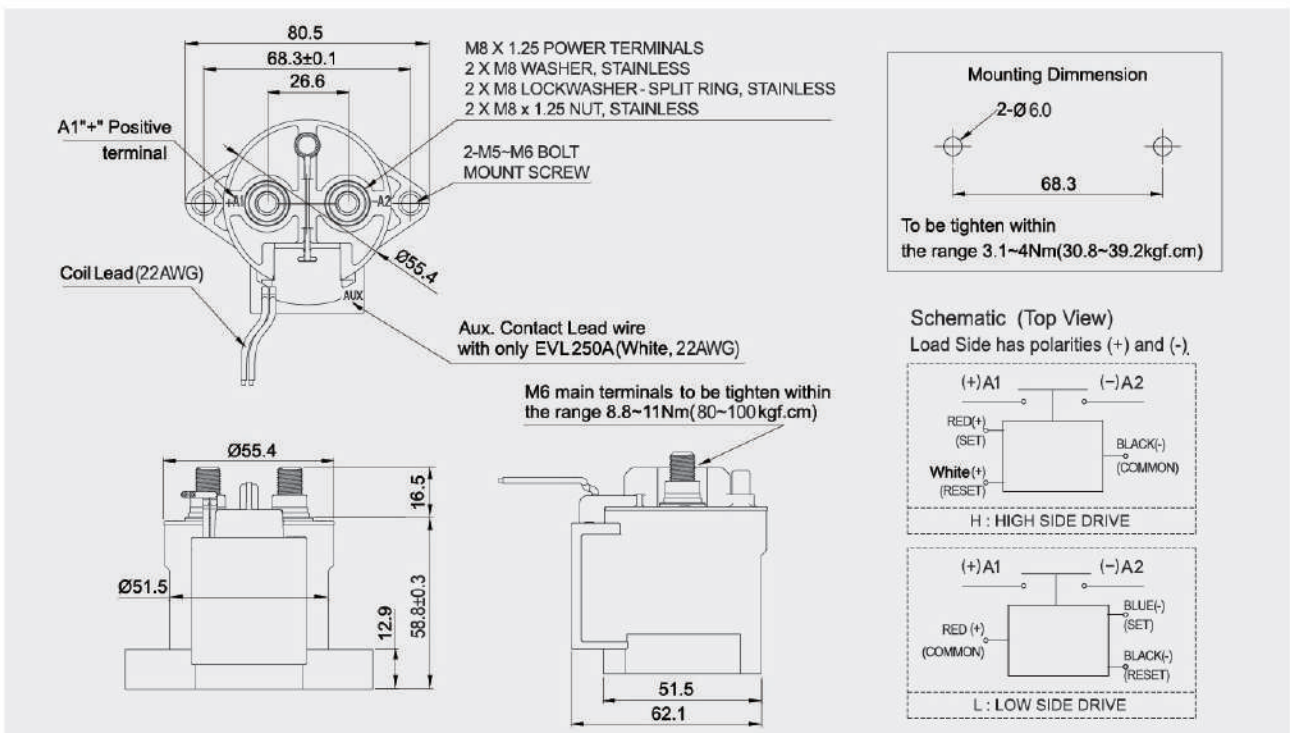
공차 (Tolerance) : 10mm 이하 ±0.3, 10~50mm ±0.6, 50mm 이상 ±1.0

### ▶ 외형치수도 (Dimension in mm)

S : Nut Type



B : Bolt Type





## DC HIGH VOLTAGE EV LATCH RELAY

## EVL350



- ▶ **응용분야 (Application)** : Electric Vehicle, Charging System, Battery Energy Storage System, Solar System, Golf Car, Fuel Cell Vehicle, Helicopter, etc.

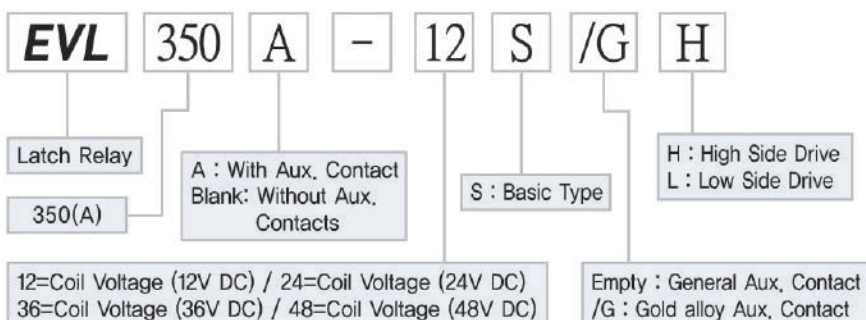
▶ **코일정격 (Magnet coil ratings)**

Nominal voltage(V)	Item	Inrush Coil current (Max.)	Pick-up Holding Time (ms)	Pick-up voltage (V)	Drop-out voltage (V)	Drop-out Time (ms)	Max. voltage (V)
12		2,5A	50~100ms	9,0VDC	9,0VDC	50~100ms	15VDC
24		1,5A	50~100ms	18,0VDC	18,0VDC	50~100ms	30VDC
36		1,0A	50~100ms	27,0VDC	27,0VDC	50~100ms	45VDC
48		0,75A	50~100ms	36,0VDC	36,0VDC	50~100ms	60VDC

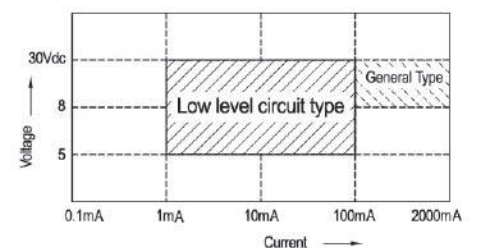
Notes : 1. Nominal current and coil resistance are measured at +20°C. 2. Differences of coil resistance are  $\pm 10\%$ .  
3. Performance characteristic coil temperature is measured at +20°C.

▶ **접점정격 (Contact ratings)**

Item	Type	1Pole Resistor load
		EVL350
Max. Continuous current (wire size 100mm <sup>2</sup> ×2)		350A
Max. switching current		350A
Max. switching voltages		900VDC
Contact Rating switching voltages		12~900VDC
Voltage drop across contacts per 100A		30mV Max. (At 5VDC)
Min. permissible load		12VDC 0,5A
Description		S,P On/Off (a)
Contact Arrangement, auxiliary contacts		1Form A (SPST-NO.)
General Aux, Contact Current, Max.		2A 30VDC / 3A 125VAC
General Aux, Contact Current, Min.		100mA 8VDC
Gold alloy Aux, Contacts Max.		0,1A 30VDC / 0,1A 30VAC
Gold alloy Aux, Contacts Min.		1mA 5VDC / 1mA 5VAC

▶ **주문방법 (Ordering information)**

Permissible load of Aux. contact



# DC HIGH VOLTAGE EV LATCH RELAY

## EVL350



EVL350

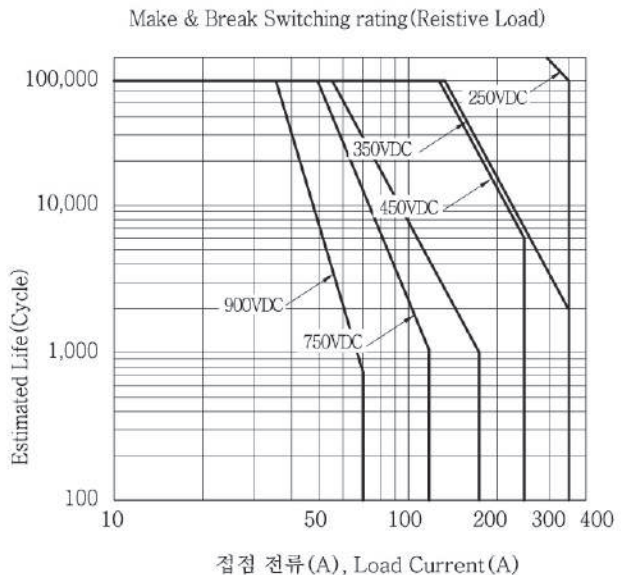
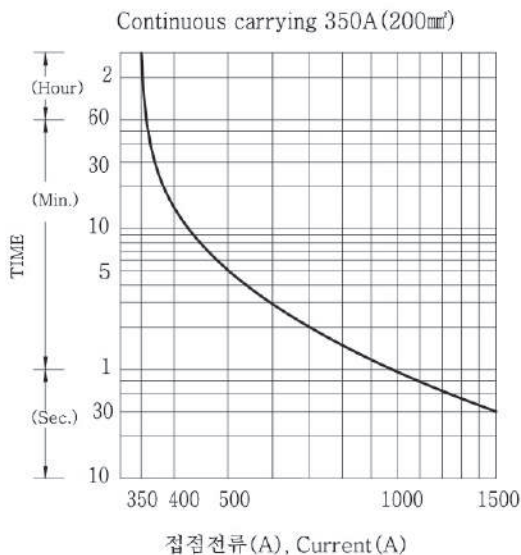
### ▶ 성능 (Characteristics)

Expected life	Mechanical (Min.)		$5 \times 10^5$
	Electric (Min.) (Resistor)	350VDC 350A	$1 \times 10^3$
250VDC 350A		$1 \times 10^5$	
Initial insulation resistance			Min. 100mΩ 500VDC
Initial breakdown voltage	Between open contacts		3500VAC 60 Sec. 5mA
	Between contacts & coil		3500VAC 60 Sec. 5mA
Operate time (at 20°C)			Max. 10ms
Release time (at 20°C)			Max. 10ms
Shock resistance	Functional		Min 147 ٪ {15G}
	Destructive		Min 490 ٪ {50G}
Vibration resistance	Functional		98 ٪ {10G} 10 to 500Hz
	Destructive		98 ٪ {10G} 10 to 500Hz
Conditions for operation transport and storage	Ambient temperature		-40°C to +85°C
	Humidity		5 to 85% R.H.
Unit weight			610g

### ▶ 특성곡선 (Reference data)

- 온도상승곡선
- 통전시간의 최대치 Max, Current capacity  
Max, Continuous thermal current rating (amperes)

- 전기적 수명 곡선  
(Estimated Switching Ratings)



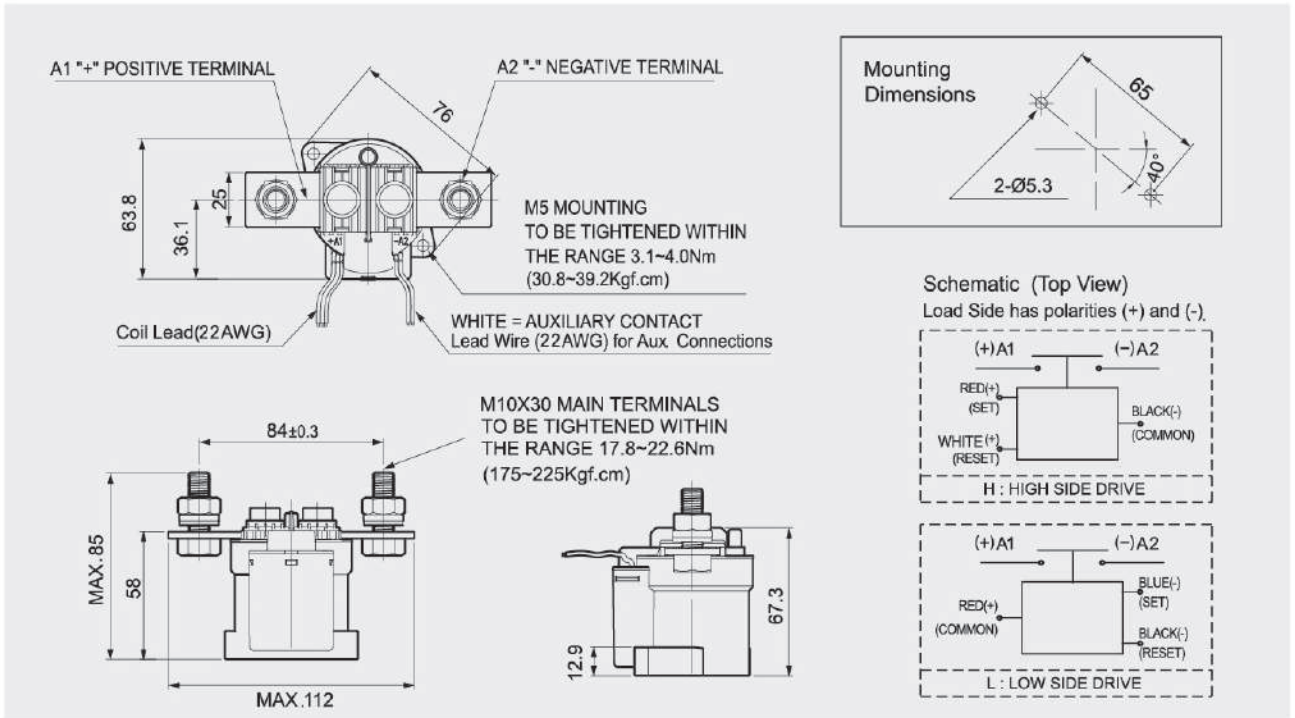
DC HIGH VOLTAGE EV LATCH RELAY

EVL350

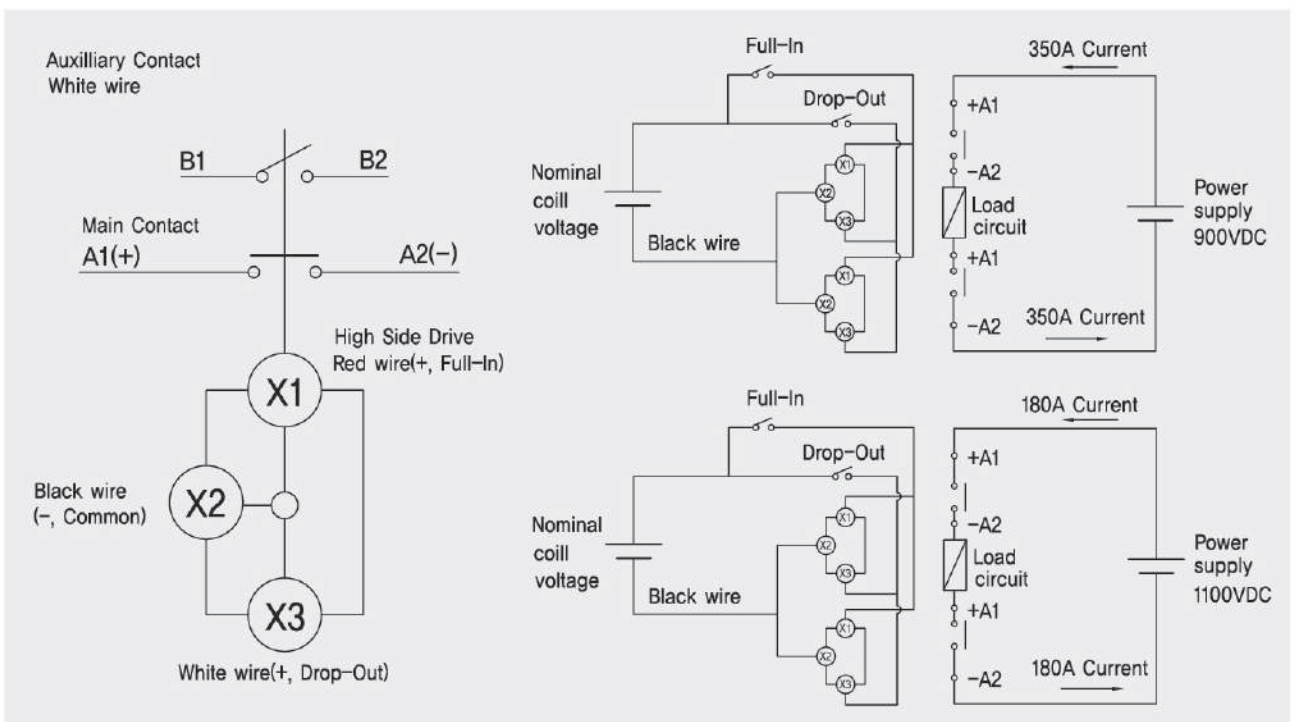


▶ 외형치수도 (Dimension in mm)

공차 (Tolerance) : 10mm 이하 ±0.3, 10~50mm ±0.6, 50mm 이상 ±1.0

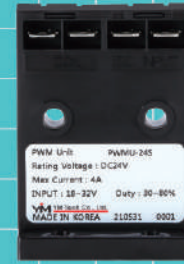


▶ EVL350-2P 결선도 (2 Pole wiring diagram of EVL350)





# PWM Unit



## ▶ Function

The PWM unit flows inrush current for the relay operation and reduces the current flowing through the coil after a certain period of time. So it is an energy saving device.

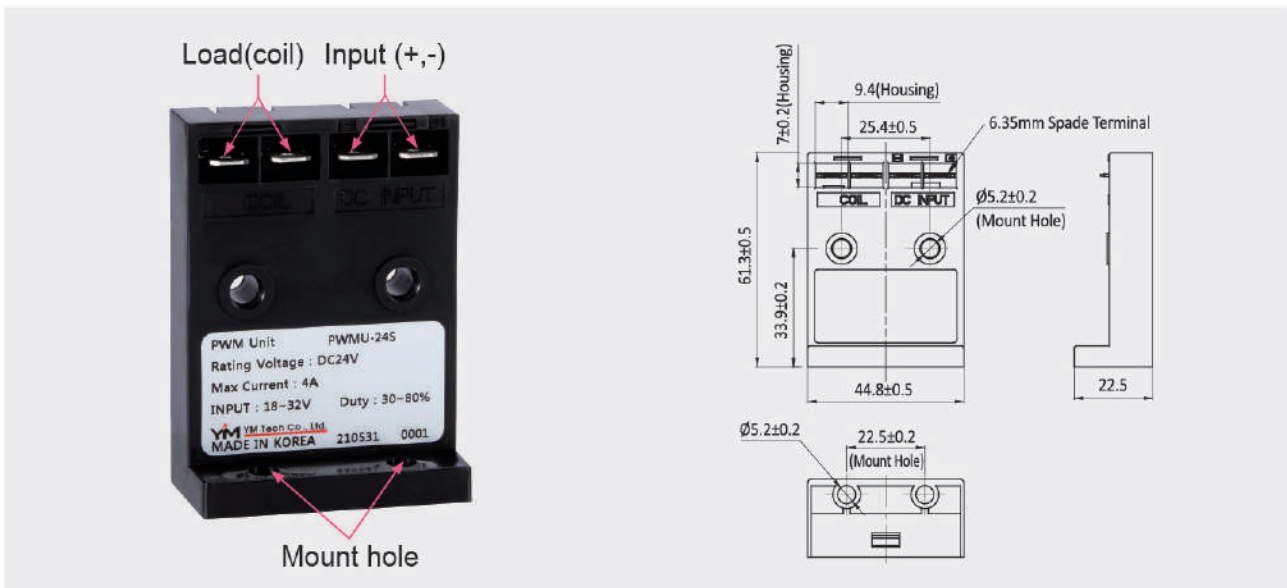
## ▶ Application load

CTT200, EVR10, EVR50, EVR100, EVHB100

## ▶ Model and rating

Model	Input (Vdc)	Max. Current	Duty (%)	동작 전압	개방 전압	Inrush Time
PWMU-12S	9~18Vdc	4A	20~100	9V±1V	6V±1V	Below 200ms
PWMU-24S	18~32Vdc	4A	30~100	18V±1V	12V±1V	
PWMU-48S	36~60Vdc	4A	40~100	33V±1V	18V±1V	

## ▶ Connection and attachment method



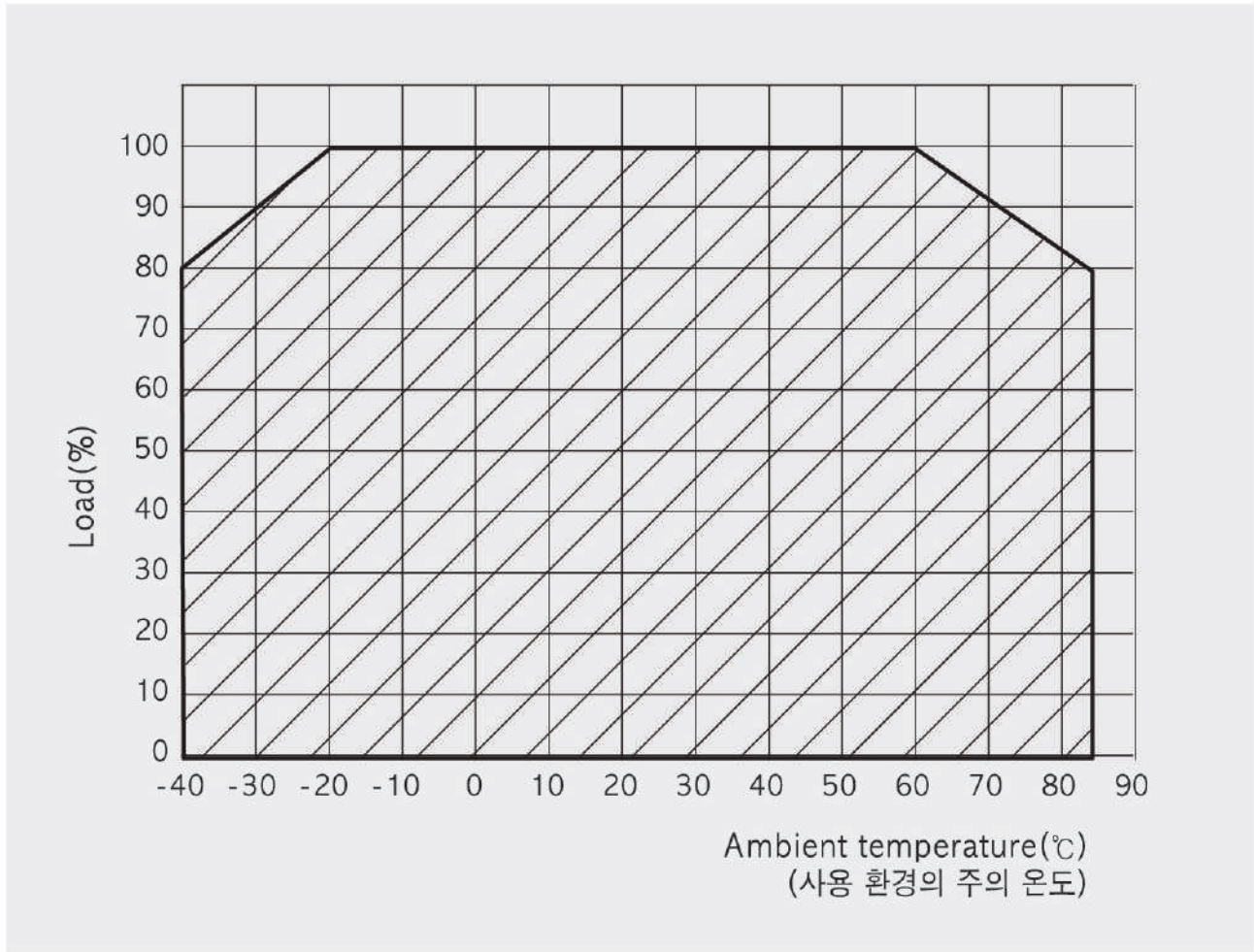
## ▶ Precautions

1. To prevent electric collision and electric shock, make a connection when the input power is off.
2. If there is a short circuit in the coil, the PWM unit may occur a failure.
3. In order to use the PWM unit, please sufficiently verify EMC, mechanical vibration and shock.

Contact De-rating factor :  
Ambient temperature

# De-rating

- ▶ EVR Relay의 온도에 따른 주접점의 De-rating 계수  
(Contact De-rating factor : Ambient temperature)



- ▶ EVR Relay의 고도에 따른 De-rating 계수  
(De-rating factor of altitude)

Altitude	Derating factor	
	Rated Operating Voltage	Continuous Current
1000m	1.00	1.00
2000m	0.9	0.98
3000m	0.80	0.96
4000m	0.72	0.94

## Power supply and wire length & Permissible conductor thickness

### ▶ EVR Relay의 고도에 따른 De-rating 계수 (De-rating factor of altitude)

NO.	Model	Coil Voltage (V)	Inrush current (A)	Wire resistance (Ω) 이내	Terminal Voltage (V) 이상	Power Supply (VA)
1	EVR250	12	2.4	0.625	10.5	30
2	EVR250	24	1.3	2.308	21.0	30
3	EVR400, EVR600	12	1.2	1.250	10.5	15
4	EVR400, EVR600	24	0.6	5.000	21.0	15
5	EVH400	12	2.8	0.536	10.5	36
6	EVH400	24	1.4	2.143	21.0	36
7	EVH600	12	3.0	0.500	10.5	36
8	EVH600	24	1.4	2.143	21.0	36
9	EVH750	12	3.0	0.500	10.5	36
10	EVH750	24	1.4	2.143	21.0	36
11	EVHB400	12	3.0	0.500	10.5	36
12	EVHB400	24	1.4	2.143	21.0	36
13	EVHB500	12	1.4	1.071	10.5	20
14	EVHB500	24	1.1	2.727	21.0	25
15	EVHD1000	12	2.5	0.600	10.5	30
16	EVHD1000	24	2.2	1.364	21.0	50

### ▶ 전원단자의 허용 도체의 두께 (Permissible conductor thickness for connecting main terminal)

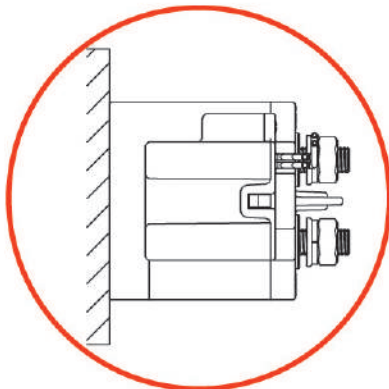
NO.	Model	Minimum thickness (mm)	Maximum thickness (mm)
1	EVR50	0.7	4.3
2	EVR100-□□S	0.7	4.5
3	EVR150-□□S	0.7	4.5
4	EVR250-□□S	1.0	3.0
5	EVR250-□□B	1.0	7.5
6	EVR400-□□S	1.0	6.0
7	EVH400	1.0	8.0
8	EVH750	1.0	8.0
9	EVHB400	1.0	8.0
10	EVHB500	1.0	5.0
11	EVHB500H	1.0	7.0



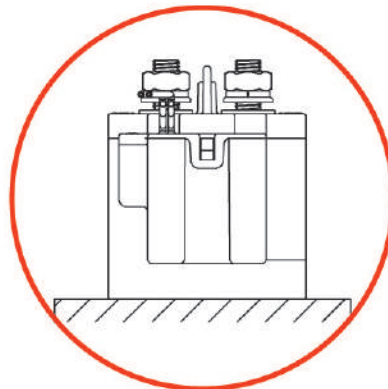
## 설치 사용 설명서

## Installation manual

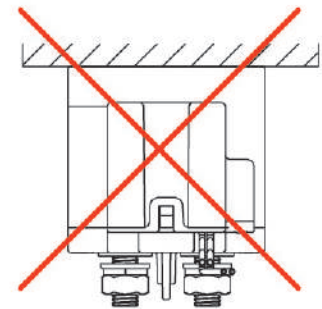
1. Normal installation directions are vertical, horizontal installation is possible, and installation upside down is impossible.



Vertical

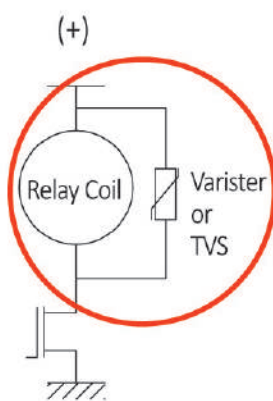


Horizontal

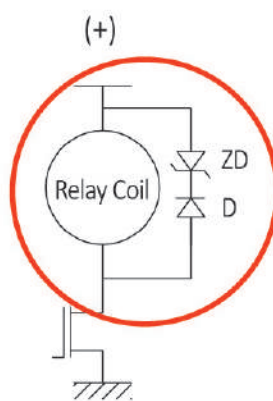


Upside down

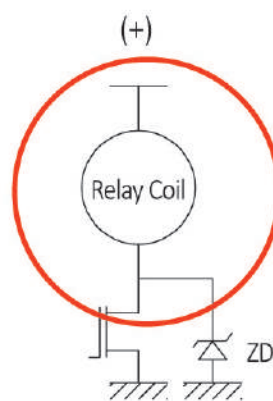
2. For wiring, select suitable conductor size for the applied voltage and current.
3. Installation, maintenance and inspection of the product should be check with connection of (+)(-) polarity. Failure to do so may result in fire and scorching.
4. If only diode is connected in parallel to the relay coil, break performance of relay cannot be assured because contact release speed becomes slower. So do not use such a circuit. Instead of diode, a Varistor (ZNR or TVS) or Zener diode (ZD) when clamp voltage is 1.5 times larger than the rated voltage, shall be used for the absorber. The model bigger than EVR250 include the absorber on the economizer. The absorber of EVR10~EVR150 please refer to the following.



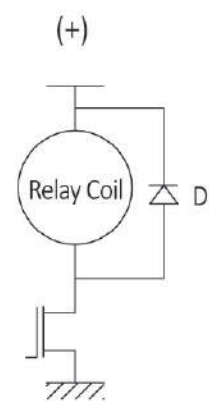
Recommend



Recommend



Recommend



No recommend

5. Please check the insulation distance between each terminal and ground.
6. If a large inrush current, it may cause contact welding, such as capacitor load. To avoid contacts welding, a pre-charge of the capacitor is required.
7. If the length of the control wire becomes long, the resistance of the control wire increases and it can not supply sufficient current. Therefore, if the length of the control wire becomes long, the cross section more than should be used.

# YMT EV Relay Features

1. YM Tech EV 릴레이는 밀폐형 릴레이로 내부에 산소 및 유기가스를 완전히 제거하여 접점의 산화 및 탄화를 방지하여 언제나 신제품 같은 접촉 신뢰성을 유지합니다.
2. 밀폐형(IP67) 등급으로 아크가 분출되지 않기 때문에 점화 가능성이나 유해한 환경에서 안전하게 사용 가능합니다.
3. YM Tech EV 릴레이는 사용 전압이 직류 450V로 동종 릴레이 중 가장 높고, 정격 전류에서 전기적 수명이 동종 릴레이 중 가장 긴 것이 YM Tech 릴레이의 특징입니다.
4. EVR 100 이상은 릴레이의 동작을 확인하고, 통신에 활용 할 수 있도록 보조 접점을 내장하였습니다.
5. EVR 400 이상은 코일에서 소모하는 전력을 절감하기 위하여 에너지 saving 회로를 채용하여 전기 자동차의 효율을 높이는데 기여 합니다.
6. EVL350은 투입과 개방 동작 시에만 코일에 약 30mS의 에너지만 공급하고 자동 차단합니다. 유지 상태는 코일에서 에너지를 전혀 소비 않는 래치 메커니즘을 장착하였으며, EV 래치 릴레이 최초의 설계입니다. 또한, 동작, 복귀 시 계속 전원이 인가 되어도 내부의 회로에서 판단하여 30mS의 동작과 복귀에 필요한 에너지만 공급하고 자동 차단되어 별도의 제어회로가 필요 없습니다. 태양광 발전 패널의 직류 스위칭에 적합하고 원거리에서 On, Off가 가능하며, 에너지 충,방전용 배터리 제어에 적합한 친환경적인 래치 릴레이입니다.
7. 전선을 연결하는 단자는 고온에 열화 되지 않아 견고하고 마모, 파손의 고장 위험이 없습니다.

1. As YM Tech EV Relay is a closed-type relay, it completely removes oxygen and organic compound emissions inside and prevents the contact from being oxidized and carbonized, which keeps the contact reliability as brand-new all the time.
2. As an Arc is not erupting with closed type(IP67), it is not likely to be ignited and can be safely used in harmful environments.
3. This YM Tech EV Relay's using voltage is a direct 450V, which is the highest among relays of the same kind. At rated current, its electrical life is the longest out of the same kind of relays.
4. As for ones over EVR100, an auxiliary contact is built in order to check the movements of relay and be able to use for communication.
5. As for ones over EVR400, an energy saving circuit is equipped to save electric power consumed in coils, which contributes to raising the efficiency of electric vehicles.
6. For EVL350, it only supplies approximately 30mS'energy to coils and shuts off automatically, only when moves such as opening and inserting are observed. And a Latch mechanism which doesn't consume any energy in coils at ordinary state is built, and is regarded as the first design of EV Latch Relay. Furthermore, although power is continuously supplying when in motion and returning, the inside circuit judges itself and supplies only necessary energy for 30mS'movements and returning, and then automatically shuts off which doesn't need an extra control circuit. It is suitable for direct switching of solar panels and can be controlled by On and Off at a long distance. This is an eco-friendly latch relay fit or controlling the batteries of energy charging/discharging.
7. As the terminal connected to wires isn't affected by high temperature, it is solid and there is no failure risks of abrasion and breakage etc.

## **YM Tech Co., Ltd.**

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★ 제품의 사양은 성능 개선을 위해 예고없이 변경될 수 있습니다.

Specifications are subject to change without notice for improving product's performance.