

### FEATURES

- Ceramic brazing sealed technology guarantees no risk of arc leaking and ensures no fire or explosion
- Filled with gas ( mostly hydrogen) to effectively prevent the oxidation burnt; the contact resistance is low and stable
- Contact part can meet IP67 protection level
- Current rated load continuously at 85°C
- Insulation resistance is 1000MΩ( 1000Vd.c.),and dielectric strength between the coil and contacts is 4.0kV ,which meets the requirements of IEC 60664-1.



### APPLICATION

Energy storage system    Construction machinery    Charging pile  
Solar inverter

### COIL DATA @ 23°C

Product Model	Nominal Voltage (VDC)	Coil Power (W)	Nominal Current (A)	Coil Resistance (Ω±10%)	Pick-up Voltage (VDC)	Drop-out Voltage (VDC)
CHPV-S20	12	2.6	0.22	55.4	9.0 Max.	1 Min.
	24	2.6	0.11	221.6	18.0 Max.	2 Min.
CHPV-S40	12	2.6	0.22	55.4	9.0 Max.	1 Min.
	24	2.6	0.11	221.6	18.0 Max.	2 Min.
CHPV-S150	12	5.5	0.46	26.2	9.0 Max.	1 Min.
	24	5.5	0.23	104.8	18.0 Max.	2 Min.
CHPV-S250B	12	6	0.50	24	9.0 Max.	1 Min.
	24	6	0.25	96	18.0 Max.	2 Min.
CHPV-S250	12	Driving 55 Holding 6	Driving 4.6, Holding 0.5	Driving 2.6, Holding 24	9.0 Max.	1 Min.
	24		Driving 2.3, Holding 0.25	Driving 10.4, Holding 96	18.0 Max.	2 Min.
CHPV-S350	12	Driving 55 Holding 6	Driving 4.6, Holding 0.5	Driving 2.6, Holding 24	9.0 Max.	1 Min.
	24		Driving 2.3, Holding 0.25	Driving 10.4, Holding 96	18.0 Max.	2 Min.
CHPV-S350B	12	Driving 55 Holding 6	Driving 4.6, Holding 0.5	Driving 2.6, Holding 24	9.0 Max.	1 Min.
	24		Driving 2.3, Holding 0.25	Driving 10.4, Holding 96	18.0 Max.	2 Min.
CHPV-S350C	12	Driving 55 Holding 6	Driving 4.6, Holding 0.5	Driving 2.6, Holding 24	9.0 Max.	1 Min.
	24		Driving 2.3, Holding 0.25	Driving 10.4, Holding 96	18.0 Max.	2 Min.
CHPV-S350D	12	Driving 55 Holding 6	Driving 4.6, Holding 0.5	Driving 2.6, Holding 24	9.0 Max.	1 Min.
	24		Driving 2.3, Holding 0.25	Driving 10.4, Holding 96	18.0 Max.	2 Min.

### CHARACTERISTICS

Operate Time(at nominal voltage)	CHPV-S20/S40≤15ms; CHPV-S150≤30ms; CHPV-S250/S250B/S350/S350B/S350C/S350D≤50ms	
Release Time(at nominal voltage)	CHPV-S20/S40≤5ms; CHPV-S150≤10ms CHPV-S250/S250B/S350/S350B/S350C/S350D≤15ms	
Insulation Resistance	> 1000 MΩ (at 1000 VDC)	
Dielectric Strength	Between Coil and Contacts	4,000 VAC, 50/60 Hz (1min)
	Between Open Contacts	3,000 VAC, 50/60 Hz (1min)
Vibration	10Hz~500Hz, 49 m/s <sup>2</sup>	
Shock Resistance	Functional	196 m/s <sup>2</sup>
	Destructive	490 m/s <sup>2</sup>
Ambient temperature	-40°C~85°C	
Humidity	5%RH to 85%RH	
Weight	CHPV-S20/S40: about 160g; CHPV-S150: about 300g; CHPV-S250B: about 570g; CHPV-S250: about 900g; CHPV-S350/350B/350C/350D: about 950g	

### CONTACT DATA

Product Model Data	CHPV-S20	CHPV-S40	CHPV-S150	CHPV-S250B	CHPV-S250	CHPV-S350/S350B/S350C/S350D
Main Contact Arrangement	1 Form A					
Aux. Contact Arrangement	/			1 Form A		
Rated Load of Aux.	/	/	/	/	6VDC, 0.1A	6VDC, 0.1A
Minimum Load of Aux.	/	/	/	/	9VDC 100mA	9VDC 100mA
Initial Contact Voltage Drop	≤90 mV at 20 A	≤120mV at 40 A	≤75mV at 150 A	≤50mV at 250 A	≤50mV at 250 A	≤6mV at 20 A
Rated Current (resistive load)	20 A (@4mm <sup>2</sup> )	40 A (@10mm <sup>2</sup> )	150 A (@50mm <sup>2</sup> )	250 A (@100mm <sup>2</sup> )	250 A (@100mm <sup>2</sup> )	350 A (@120mm <sup>2</sup> )
Rated Switching Voltage	1500VDC					
Min.Applicable Load	6VDC, 1 A					
Max. Switching Power (1500VDC)	30kW	60kW	225KW	375KW	375KW	525KW
Max. Breaking Current	200A (1000VDC)	400A (300VDC)	1200A (300VDC)	2000A (1000VDC)	2000A (1000VDC)	2000A (1500VDC)

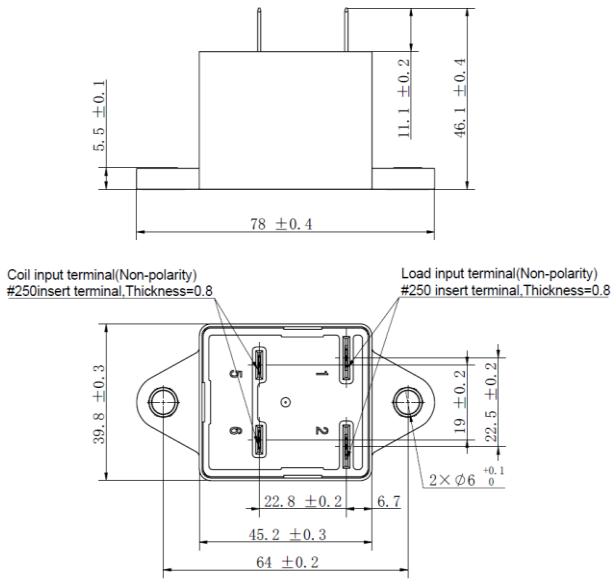
## ENDURANCE

Product Model Data	CHPV-S20	CHPV-S40	CHPV-S150	CHPV-S250B	CHPV-S250	CHPV-S350/S350B/S350C/S350D
Electrical Life (resistive Load)	Switching: 7.5×10 <sup>4</sup> ops (450 Vd.c.,20A)	Switching: 7.5×10 <sup>4</sup> ops (450 Vd.c.,40A)	Switching: 600 ops (1000 Vd.c.,150A)	Switching: 300 ops (1000 Vd.c.,250A)	Switching: 400 ops (1000 Vd.c.,250A)	Breaking: 5000 ops (1500 Vd.c.,100A)
	Switching: 5×10 <sup>4</sup> ops (750 Vd.c.,20A)	Switching: 1000 ops (750 Vd.c.,40A)	Switching: 200 ops (1500 Vd.c.,150A)	Switching: 15 ops (1500 Vd.c.,250A)	Switching: 20 ops (1500 Vd.c.,250A)	Breaking: 3000 ops (1500 Vd.c.,150A)
	Switching: 1.5×10 <sup>4</sup> ops (1000 Vd.c.,20A)	Making: 7.5×10 <sup>4</sup> ops (750 Vd.c.,40A)	Switching: 7.5×10 <sup>4</sup> ops (450 Vd.c.,20A)	Breaking: 25 ops (1500 Vd.c.,250A)	Breaking: 30 ops (1500 Vd.c.,250A)	Breaking: 1000 ops (1000 Vd.c.,350A)
	Switching: 6000 ops (1500 Vd.c.,15A)	Breaking: 6000 ops (1500 Vd.c.,15A)	Breaking: 1 ops (300 Vd.c.,1200A)	Breaking: 1 op (1000 Vd.c.,2000A)	Breaking: 1 op (1000 Vd.c.,2000A)	Breaking: 5 ops (1500 Vd.c.,350A)
	Breaking: 1 op (1000 Vd.c.,200A)					Breaking: 1 op (1500 Vd.c.,2000A)
Current Endurance	20A, Cont.	40A, Cont.	150A, Cont.	250A, Cont.	250A, Cont.	350A, Cont.
	30A, 1.0 h	60A, 1.0 h	180A, 1.0 h	300A, 10 min	350A, 10 min	400A, 10 min
	40A, 20 min	80A, 20 min	225A, 10 min	500A, 60 s	550A, 60 s	600A, 90 s
	80A, 30 s	160A, 30 s	320A, 2 min	1000A, 30 s	1000A, 30 s	2000A, 1 s
	120A, 10 s	320A, 10 s	400A, 60 s	2000A, 0.6 s	2000A, 0.6 s	
	200A, 0.6 s	400A, 0.6 s	600A, 20s			
			900A, 8s			
Mechanical endurance	2x10 <sup>5</sup> times, on-off ratio: 0.5s: 0.5s					

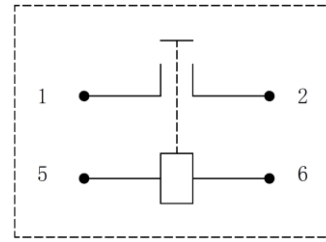
## ORDERING INFORMATION

Company Code	CH	PV	S	350	B	/	F	12	C	A	1	-	A	C	,	XXX
CH: Churod																
Application Area																
PV: Photovoltaic Energy Storage																
Series Code																
S: S Series																
Load Current																
20: 20A 40:40A 150:150A; 250: 250A 350: 350A																
Pin Type																
Nil: Standard form B: Form B C: Form C D: Form D																
Load Voltage																
C:750VDC D:850VDC E:1000VDC F: 1500VDC																
Coil Specification																
12: 12VDC 24: 24VDC																
Coil Termination																
Q: QC terminal L: Wire C: Connector																
Contact Type																
A: Form A																
Load Termination																
1:Screw Terminal Female 2:Screw Terminal Female+Busbar 3:Screw Terminal male 4:QC terminal																
Aux. Contact Type																
A: Form A																
Aux. Contact Termination																
C: Connector L:Wire																
Characteristic Code																
Blank or Other Customer Requirements																

## CHPV-S20 OUTLINE DIMENSION

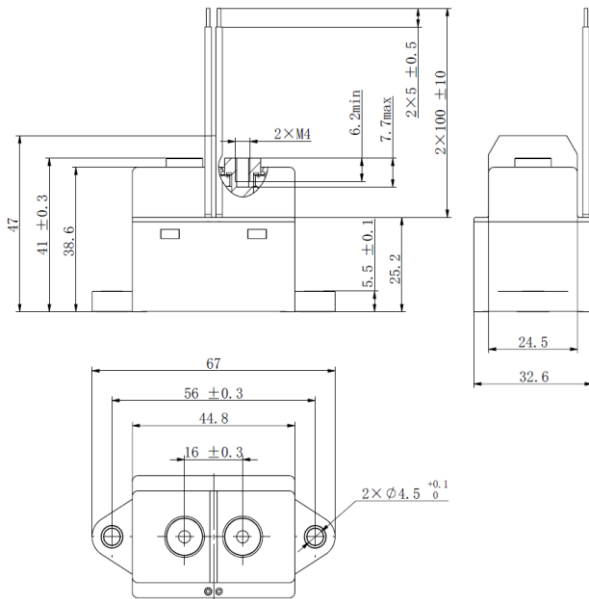


## CHPV-S20 WIRING DIAGRAM

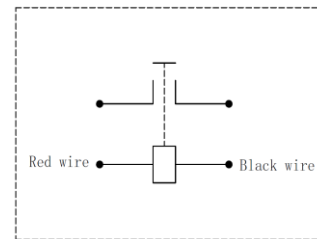


Note: No polarity on the load and coil

## CHPV-S40 OUTLINE DIMENSION

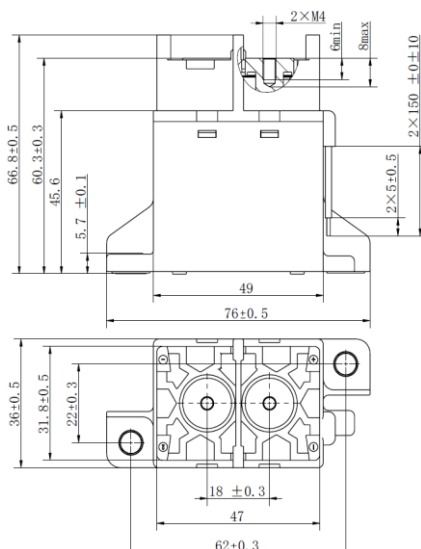


## CHPV-S40 WIRING DIAGRAM

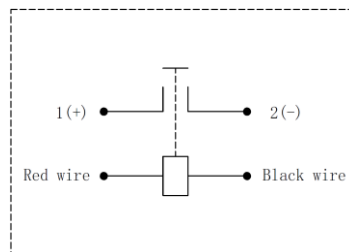


Note: No polarity on the load and coil

## CHPV-S150 OUTLINE DIMENSION

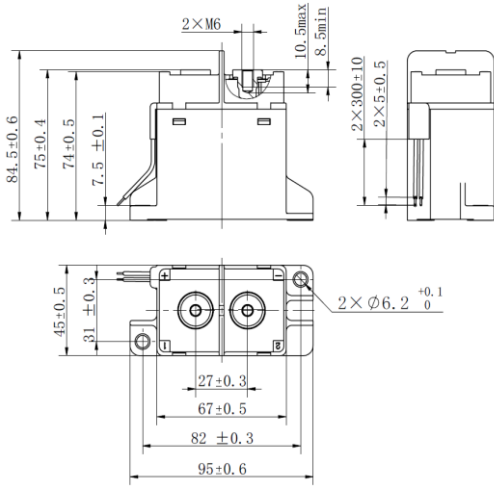


## CHPV-S150 WIRING DIAGRAM

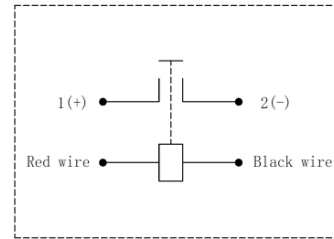


Note: The load has polarity and The coil has no polarity

## CHPV-S250B OUTLINE DIMENSION

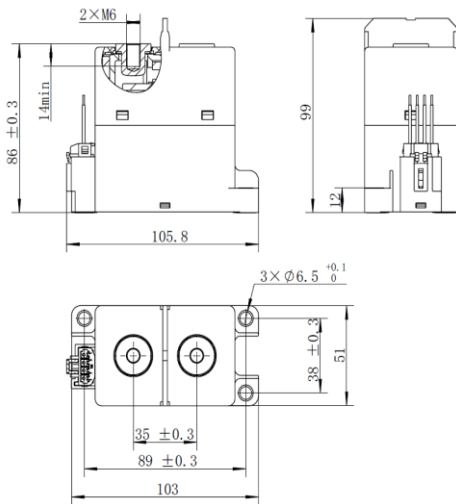


## CHPV-S250B WIRING DIAGRAM

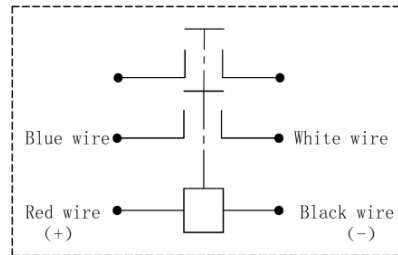


Note: The load has polarity and The coil has no polarity

## CHPV-S250/350B OUTLINE DIMENSION

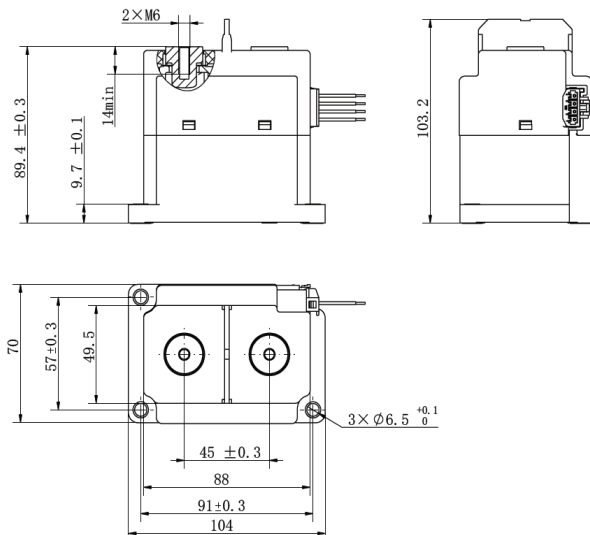


## CHPV-S250/350B WIRING DIAGRAM

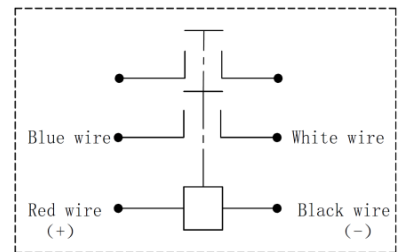


Note: The coil has polarity, The load and Aux. have no polarity

## CHPV-S350 OUTLINE DIMENSION

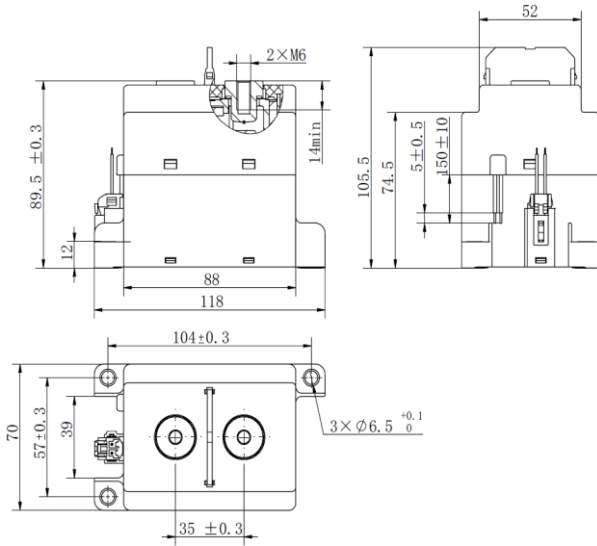


## CHPV-S350 WIRING DIAGRAM

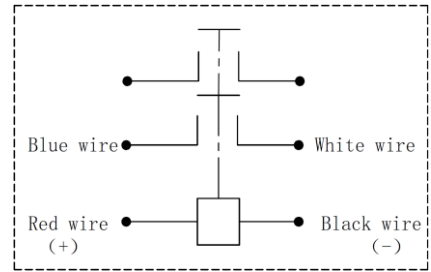


Note: The coil has polarity, The load and Aux. have no polarity

## CHPV-S350C OUTLINE DIMENSION

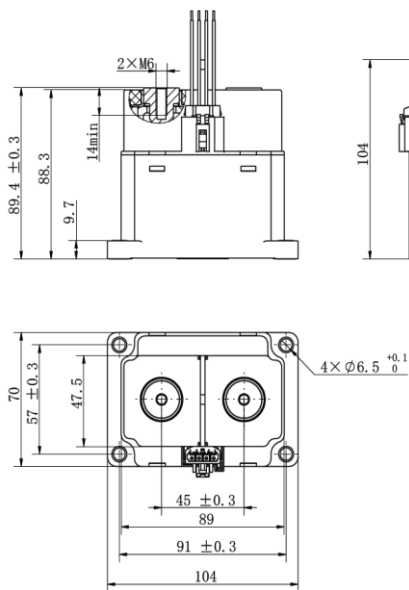


## CHPV-S350C WIRING DIAGRAM

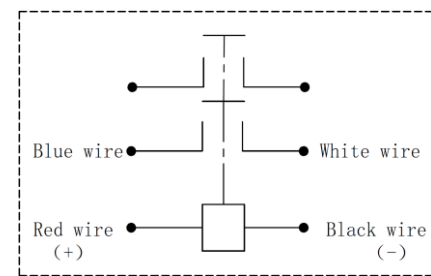


Note: The coil has polarity, The load and Aux. have no polarity

## CHPV-S350D OUTLINE DIMENSION

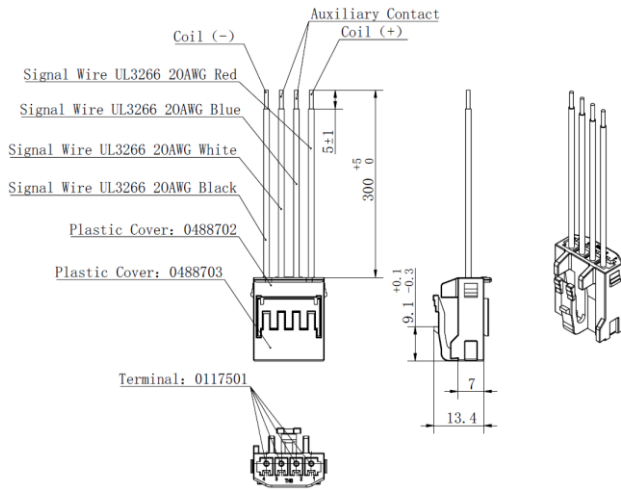


## CHPV-S350D WIRING DIAGRAM

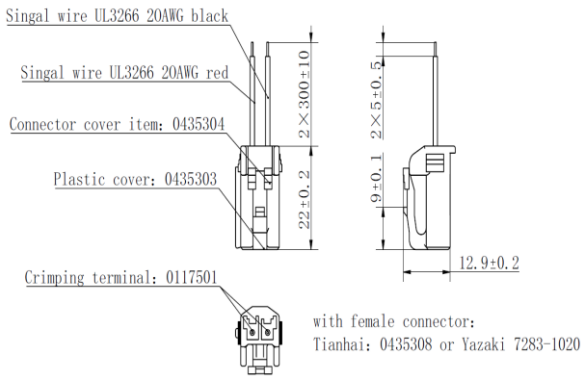


Note: The coil has polarity, The load and Aux. have no polarity

## CHPV-S250/S350/S3350B/S350D COIL TERMINATION:CONNECTOR



## CHPV-S350C COIL TERMINATION:CONNECTOR



Note: All unspecified tolerance according to following table.

Outline dimensions hadn't specified tolerance	
Outline Dimensions	Tolerance
≤10	±0.3
10~50	±0.6
> 50	±1

## INSTALLATION INFORMATION

Load Terminal Installation					
Product Model	Installation Mode	Selection Screw	Torque	Copper Busbar Diameter	Copper Busbar Thickness
CHPV-S40	M4 Screw	M4x8 Combined Bolt	2 N·m ~3N·m	Ø 4.0 mm~Ø 4.5 mm	1.0mm~1.5 mm
CHPV-S150	M4 Screw	M4x11 Combined Bolt	2 N·m ~3N·m	Ø 4.0 mm~Ø 4.5 mm	2.0mm~3.0mm
CHPV-S250B	M6 Screw	M6x12 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	2.0mm~3.0mm
CHPV-S250	M6 Screw	M6x18 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	3.0mm~5.0 mm
CHPV-S350	M6 Screw	M6x18 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	3.0mm~5.0 mm
CHPV-S350B	M6 Screw	M6x18 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	3.0mm~5.0 mm
CHPV-S350C	M6 Screw	M6x18 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	3.0mm~5.0 mm
CHPV-S350D	M6 Screw	M6x18 Combined Bolt	6 N·m ~8N·m	Ø 6.0 mm~Ø 6.5 mm	3.0mm~5.0 mm

Relay Installation			
Product Model	Mounting Type	Installation Mode	Torque
CHPV-S20	Horizontal or vertical direction	M5 Screw	3 N·m ~4N·m
CHPV-S40		M4 Screw	2 N·m ~3N·m
CHPV-S150		M5 Screw	3 N·m ~4N·m
CHPV-S250B		M5 Screw	3 N·m ~4N·m
CHPV-S250		M6 Screw	6 N·m ~8N·m
CHPV-S350		M6 Screw	6 N·m ~8N·m
CHPV-S350B		M6 Screw	6 N·m ~8N·m
CHPV-S350C		M6 Screw	6 N·m ~8N·m
CHPV-S350D		M6 Screw	6 N·m ~8N·m

## ENGINEERING NOTES

1. Unless otherwise explicitly stated, the standard environment conditions for measurement or testing are listed as follows:

Ambient temperature is 23°C±5°C.

Atmospheric pressure is 96kPa (1±10%) kPa.

Relative humidity is 25% RH ~ 75% RH.

2. In order to curb the reverse electromotive force of coil, a nonlinear resistor is recommended to use (ZNR is recommended, the max energy tolerance:≥1J; Voltage: 1.5~2 times the rated voltage) . Please be noted that a diode will make the release time of relay increase, which should lead to the degradation of cutting-off capability.Relay products with circuit board do not need to add a device to curb the reverse electromotive force of the coil.

3. The rating load of contact is resistive load. Please assure a surge absorption device together with inductive load when using the L/R≥1ms inductive load (L Load), otherwise it may lead to the decrease of electrical endurance and defective switch.