



# High Voltage DC Contactor

SGX400 400A CERAMIC BI-DIRECTIONAL CONTACTOR



## Feature

- Hermetically seal rated to 175°C – Reduced risk of fire or meltdown in over current conditions.
- Backfilled with gas (primarily hydrogen) to effectively inhibit oxidation, resulting in low and stable contact resistance.
- Continuous current carry 400A at 85°C
- High short circuit current withstanding: 10kA, 5ms.
- Comply with IEC 60664-1 and RoHS standards.

## Applications

- Material Handling
- Residential ESS
- DC Fast Charging

## SPECIFICATIONS

### Contact data

Specifications	Data
Contact Arrangement	1 Form A
Contact Resistance	≤0.5mΩ @ 200A
Rated Load Current	400A(@200mm <sup>2</sup> wire)
Rated Switching Voltage	450Vdc. / 750Vdc
Rated Switching Power	180kW @450Vdc / 300kW @750Vdc
Min. Applicable Load	6Vdc, 1A
Max. Switching Voltage	1000Vdc
Max. Switching Power	300kW (750Vdc)
Max. Breaking Current	2000A(750Vdc), 1cycle

### Characteristics

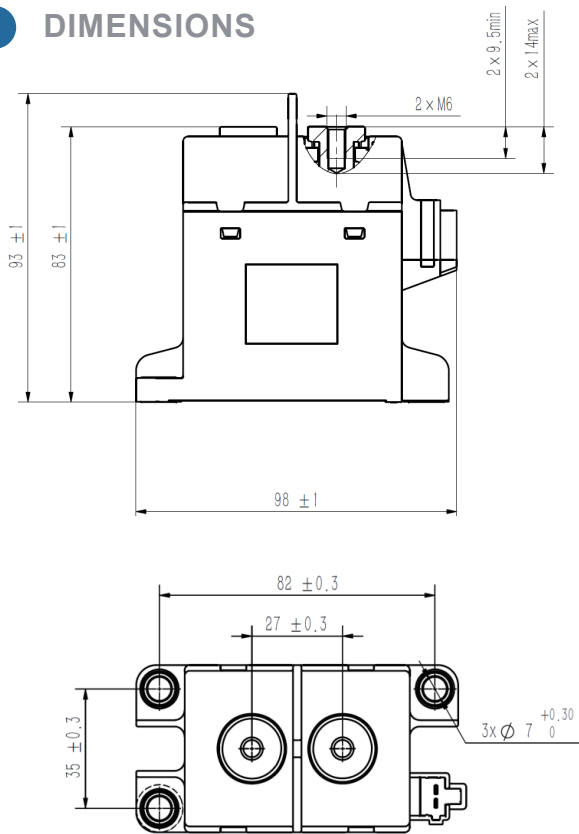
Specifications	Data	
Dielectric Strength	Between Open Contacts	3000Vac, 1min
	Between Coil&Contacts	3000Vac, 1min
Insulation Resistance	1000MΩ at 1000Vdc	
Operate Time (at nomi. volt.)	≤50ms	
Release Time (at nomi. volt.)	≤10ms	
Vibration Resistance (sine)	10Hz~500Hz, 49m/s <sup>2</sup>	
Shock Resistance	Functional Open: 196m/s <sup>2</sup> Functional Close: 588m/s <sup>2</sup>	
	Destructive: 490m/s <sup>2</sup>	
Ambient Temperature	-40°C~85°C	
Humidity	5% RH~85% RH	
Termination	M6 female screw	
Mounting	M6 screw	
Unit Weight	Approx.760g	
Outline Dimensions	Refer to the drawings	

## Coil

Nominal Voltage Vdc	Pick-up Voltage Vdc	Drop-out Voltage Vdc	Coil Power W
12	≤9	≥1	6.0 @23°C
24	≤18	≥2	

Notes: The values above are conservative values within the temperature range(-40°C to 85°C).

## DIMENSIONS



General Tolerance	
Outline Dimension	Tolerance
≤10mm	+0.3mm
10-50mm	+0.6mm
>50mm	+1.0mm

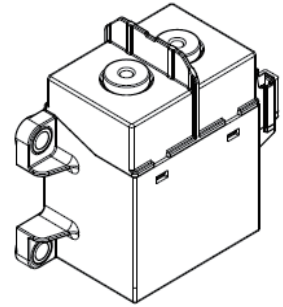
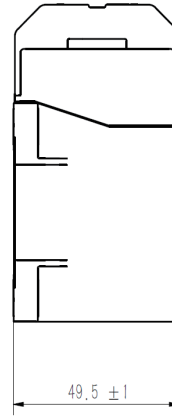
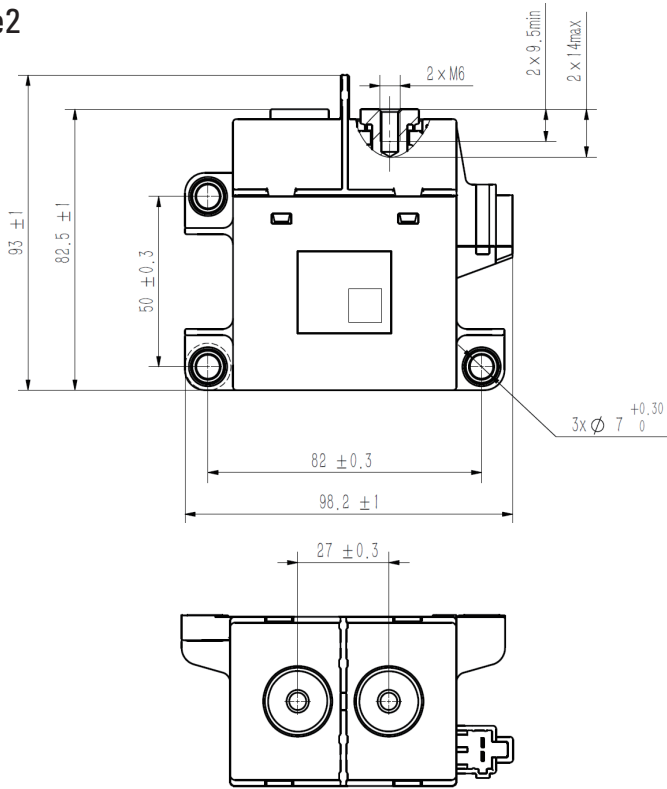
## Endurance

Specifications	Data
<b>Electrical Endurance</b>	Switch on: 7.5 × 10 <sup>4</sup> cycles (22.5 Vdc, 140A, C=1100μF)
	Switch off: 7.5×10 <sup>4</sup> cycles (450Vdc, 5A)
	Switch off: 2.5×10 <sup>4</sup> cycles (450Vdc, 10A)
	Switch off: 3.0×10 <sup>3</sup> cycles (450Vdc, 200A)
	Switch off: 1.0×10 <sup>3</sup> cycles (450Vdc, 400A)
	Switch off: 100cycles (750Vdc, 400A)
Switch off: 1cycle (450Vdc, 2000A)	
<b>Short Circuit Current</b>	500Vdc 10000A t ≤5ms, 1cycle (no smoke, no fire)
<b>Current Endurance</b>	400A, Cont.
	500A, 2000s
	1350A, 15s
	2000A, 10s
	3000A, 5s
<b>Mechanical endurance</b>	2×10 <sup>5</sup> cycles, on-off ratio: 0.6s : 5.4s

### Notes:

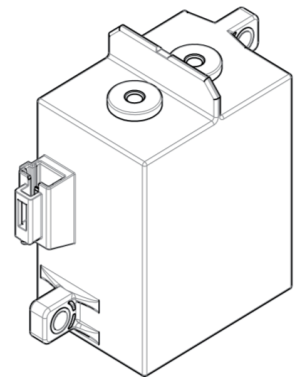
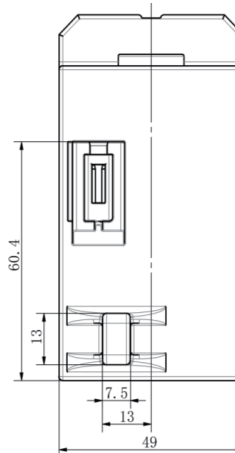
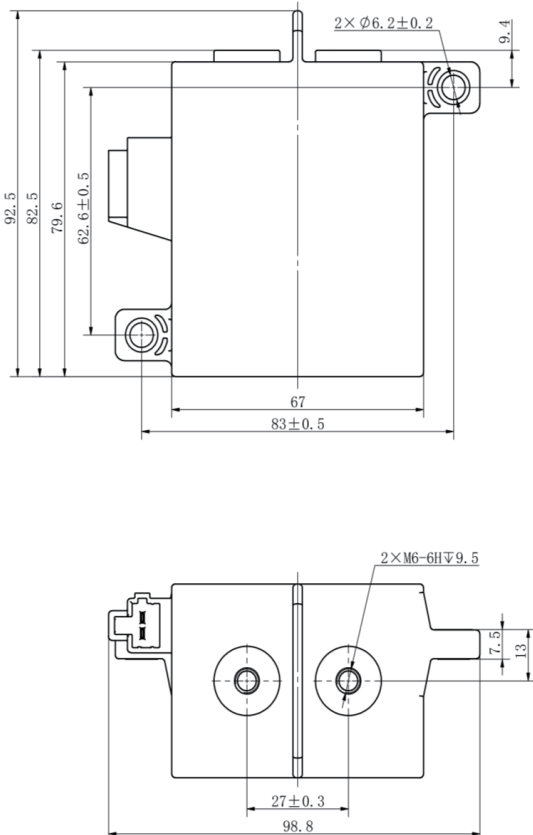
- (1) Until special statement, the temperature of electrical endurance is at 23°C and the on-off ratio is 0.6s: 5.4s.
- (2) Coil is not connected to surge suppressor during test. Attention: If the coil is used in parallel with the diode, the release time of the contactor will be prolonged and the service life will be reduced.
- (3) If breaking current ≥ 1200A, contactor's insulation resistance may decrease (≥1MΩ), but with no fire or explosion. When the current is ≥ 2000A, no fire or explosion shall occur after the test as the acceptance requirements. (Welding may occur, dielectric strength and insulation resistance may decrease).

### Shape2



General Tolerance	
Outline Dimension	Tolerance
$\leq 10\text{mm}$	+0.3mm
10-50mm	+0.6mm
$> 50\text{mm}$	+1.0mm

### Shape3

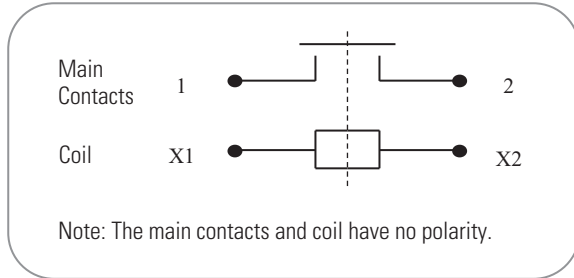


General Tolerance	
Outline Dimension	Tolerance
$\leq 10\text{mm}$	+0.3mm
10-50mm	+0.6mm
$> 50\text{mm}$	+1.0mm

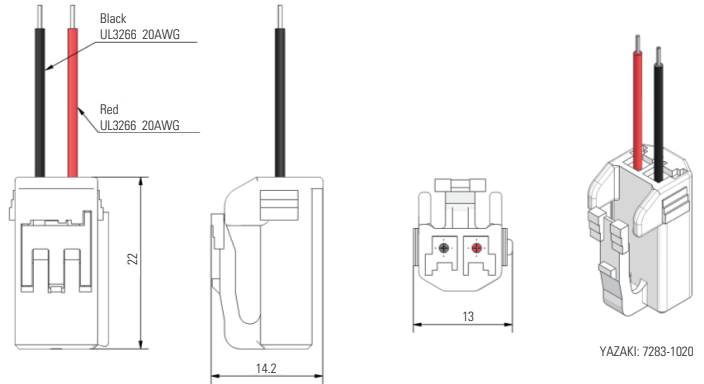


## ● INSTALLATION

### ① Wiring Diagram



### ② Recommended connector



### ③ Installation Torque

Load Terminal Installation				
Installation Mode	Screw Installation Depth	Torque	Copper Busbar Diameter	Copper Busbar Thickness
M6 Screw	8.0mm~9.5mm	6N·m~8N·m	6.0mm~6.5mm	4.0mm~6.0mm

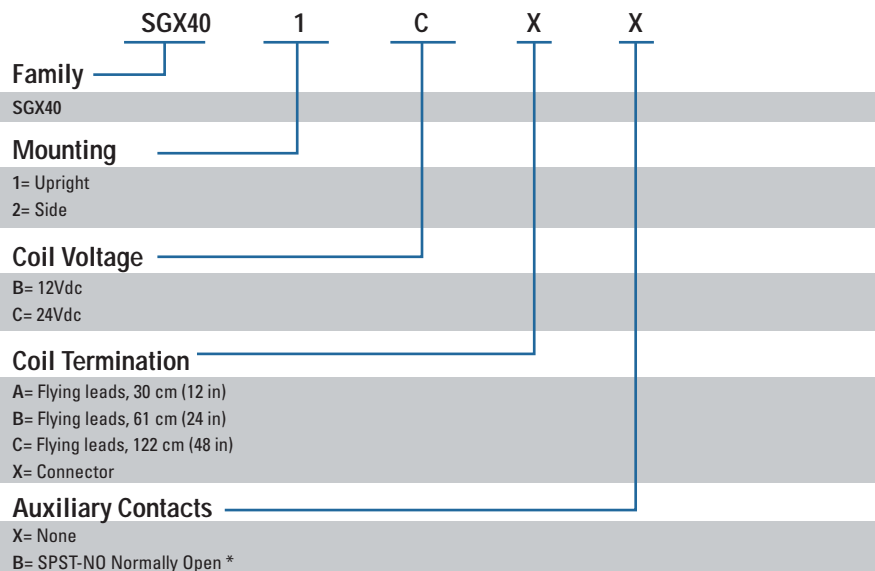
Relay Installation	
Installation Mode	Torque
M6 Screw	6N·m~8N·m (shape 1/2)
M5 Screw	3N·m~4N·m (shape 3)

Note:

- In order to prevent loosening, please use extra washer when installing contactor: spring washer + flat washer.
- Please avoid grease and other foreign matter in the terminal, please use the connecting wire with a cross section area  $\geq 60\text{mm}^2$ , otherwise they may cause abnormal heating in the terminal part.

## ● ORDERING OPTIONS

Example SGX401CXX



Note\*:  
in development



**WARNINGS**



**RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE**

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



**HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH**

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions will result in death or serious injury.**

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