

# High Voltage DC Contactor

# GLW400



## Features

Non-polarized contactor — Main contacts are not affected by the direction of current during use.

Ceramic seal — Adopts high reliable ceramic seal technology and fill gas with strong cooling ability to quickly switch off the DC load.

Fully sealed — Prevents arc exposure, contacts are in a sealed environment with low and stable contact resistance, can work in harsh environment. Internal protection level of contacts can reach IP67.

Fully RoHS compliant — Better for the environment.

Application fields — BEV, battery charging system, PHEV, charging pile and other.

## Contact Data

Contact arrangement	SPST-NO
Working voltage range	12-800VDC
Rated current	400A (Cable 240mm <sup>2</sup> )
Current carrying capacity	600A, 20min
	800A, 5min
	1200A, 30s      See figure 1
Min. load	1A, 12VDC
Max. switching current	3200A, 450VDC, 1 time
Contact resistance (initial)	<0.4mΩ (at 400A)
Electrical life <sup>1</sup>	±400A, 450VDC, 2000 times (make & break)
(resistive load)	±400A, 750VDC, 1000 times (make & break)
	±500A, 450VDC, 50 times (make & break)
Mechanical life	200,000 cycles

Note 1 Unless specified, all tests are conducted in normal room temperature. Operating frequency: 0.6s on, 5.4s off.

## Performance Parameter

Insulation resistance <sup>2</sup>	>1000M $\Omega$ (1000VDC)
Dielectric strength between open contacts	2500VAC, 1 min (current leakage $\leq$ 1mA)
Dielectric strength between contacts and coil	2500VAC, 1 min (current leakage $\leq$ 1mA)
Operate time (@normal coil voltage, 23 $^{\circ}$ C)	$\leq$ 30ms
Release time (@normal coil voltage, 23 $^{\circ}$ C)	$\leq$ 10ms
Shock - Functional	1/2 sine, 11ms, 196m/s <sup>2</sup>
Shock - Destructive	1/2 sine, 6ms, 490m/s <sup>2</sup>
Vibration	10-2000 Hz, 57.9m/s <sup>2</sup>
Unit weight	Approx.700g

Note 2 The Insulation resistance is above 50 M $\Omega$  after electrical life test.

## Operating Conditions

Ambient temperature range	-40 $^{\circ}$ C to +85 $^{\circ}$ C
Humidity	5%RH to 95%RH

## Coil Data

Coil serial number	S <sup>3</sup>	T <sup>3</sup>
Coil version	Dual coil	Dual coil
Rated voltage	12VDC	24VDC
Max. operating voltage	16VDC	32VDC
Pick-up voltage (23 $^{\circ}$ C)	$\leq$ 9VDC	$\leq$ 18VDC
Drop-out voltage (23 $^{\circ}$ C)	$\geq$ 1.2VDC	$\geq$ 2.4VDC
Rated current	0.36A	0.18A
Pick-up current <sup>4</sup>	4.4A	2.3A
Pick-up power <sup>4</sup>	55W	55W
Rated power	4.5W	4.5W

Notes:

3. The contactor has A single trigger pulse generating circuit, requiring the voltage must be applied instantly to at least the max. pick-up voltage. Otherwise, the contactor will not pick up.
4. The current of coil changes (from pick-up current to normal) around 300 milliseconds after activation. Please avoid repetitive switching, which interval time is less than 300 milliseconds.

## Current Carrying Capacity

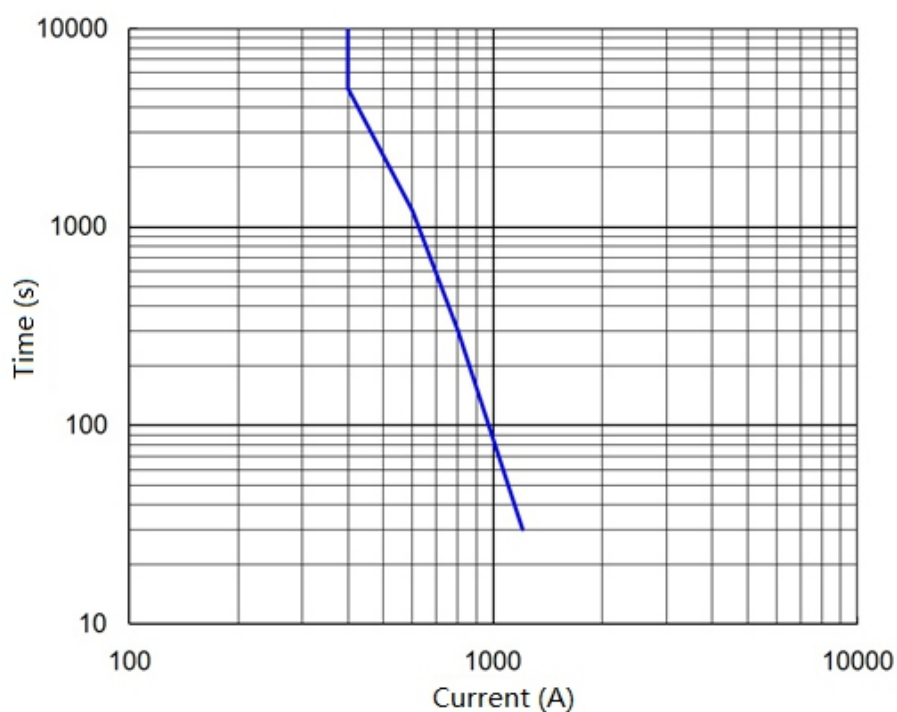
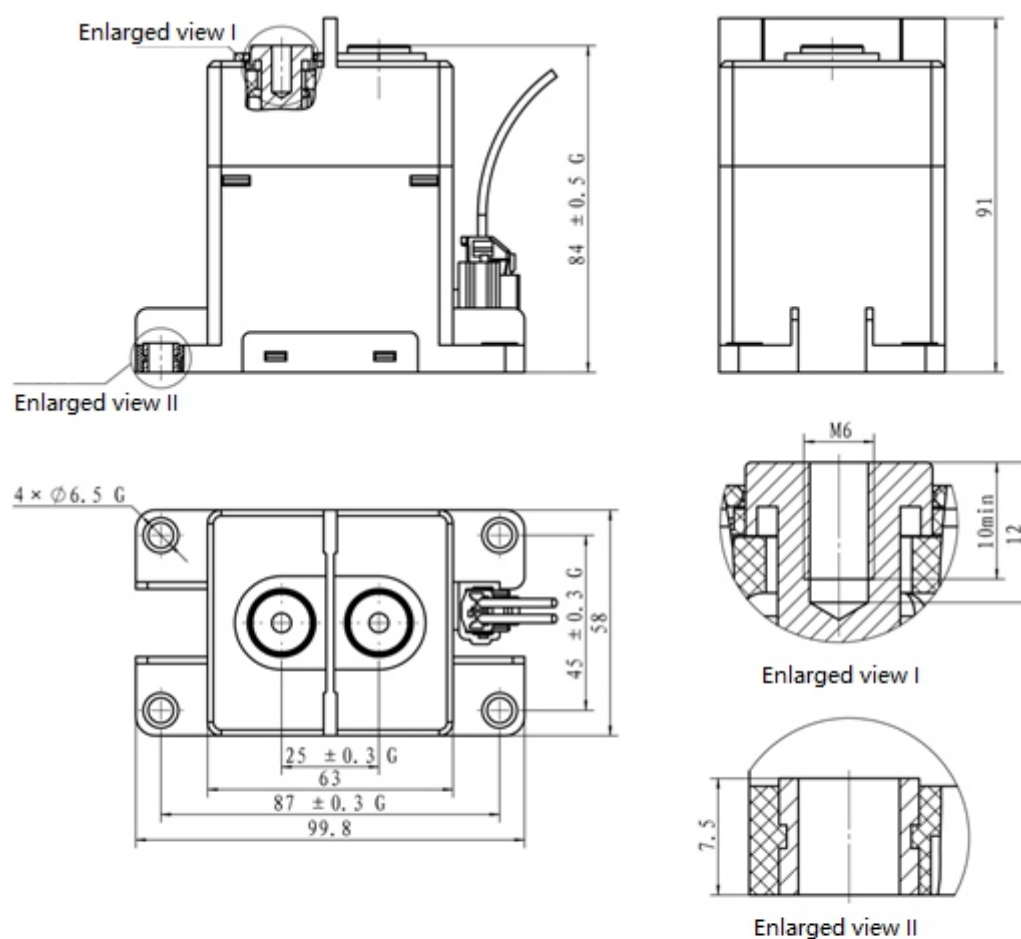


Figure 1 Current carrying capacity

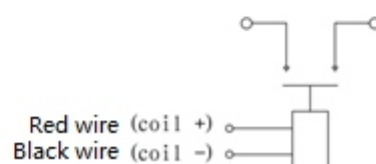
## Product Code Structure

GLW400	A	T	XXXXX
Contact form	A: NO		
Coil rated voltage		S: 12 VDC T: 24 VDC	
Customer code			XXXXX

## Outline



Wiring diagram

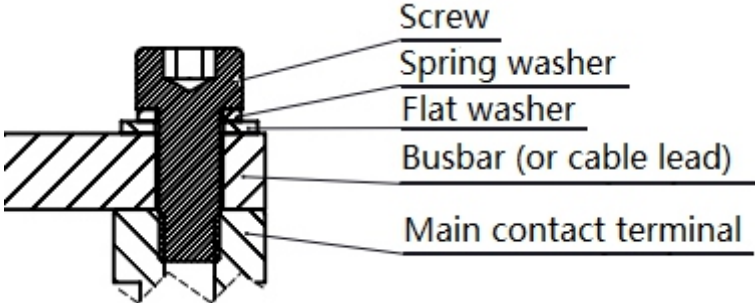


### Notes:

- 1 The sizes marked with G are critical.
- 2 Tolerance
  - <10 mm:  $\pm 0.25$  mm
  - 10-50 mm:  $\pm 0.50$  mm
  - >50 mm:  $\pm 0.80$  mm
- 3 Product has coil interface socket, mating connector is YAZAKI 7283-1020.
- 4 Wire lead spec.: AWM3321, 22AWG, 380mm long. Red wire is positive (+), black wire is positive.
- 5 The M6 screws for main contact fixing are supplied by default.

## Application Notes

- When contactor is connected with one or more busbars, please ensure that the busbars are tightly fitted to the contact terminal face (when there are multiple busbars, please ensure that the busbar with large current is closest to the contact terminal face, and the busbars with low current come next), then the flat washer, spring washer and screw. Incorrect connection order can cause severe overheating.

Contact type	Connection diagram
Internal thread	

- Please avoid foreign bodies, grease or corrosive liquids during installation, otherwise it will lead to abnormal heating at contact terminals.
- Please control the tightening torque during installation within the scope specified in the table below, exceeding the range may cause thread damage. The screws for main contacts are optional accessories. Please refer to the following table for installation information:

Fixing of contact			Fixing of contactor body	
Screw type	Torque	Depth of thread engagement	Screw type	Torque
M6	6Nm-8Nm	≥8mm	M6	6Nm-8Nm

- There is no polarity distinction at the main contact, load can be connected in any current direction.
- There is polarity distinction at the coil, positive (+) and negative (-). Please follow the instructions in wiring diagram, connection with wrong current direction cannot make the contactor move.
- Contactors has internal transorb for coil suppression.
- In a capacitive load, please pre-charge the capacitive load to make sure voltage difference less than 20V when contactor pick up. The contactor may have a contact welding without such action.
- In an inductive load, a parallel connection with surge absorber is recommended in the inductive load. It may weaken the break performance if without such protection.
- Please avoid collision or fall in transit or use. To ensure the product performance, please do not use the contactor if there was a collision or fall.
- For 3D drawing, please refer to GLW400 3D-V2.0.
- Please contact GLVAC for more info or support.