GCA500 1000VDC/500A BIDIRECTIONAL CONTACTOR

HIGH VOLTAGE DC CONTACTER



Features

- Silver-plated contacts and moveable blades with IP67 protection; Contact resistance less than 0.25 milliohms resulting in low heat generation.
- Sealed nitrogen design which quickly cools arcs; Enhanced magnetic blowout design enabling rapid disconnection of DC loads.
- Dust-free vacuum production environment; Special glue filling and curing processes ensuring product quality and enhancing production efficiency.
- Full Certificates: UL/CE/RoHS/Reach Compliant.

SPECIFICATIONS

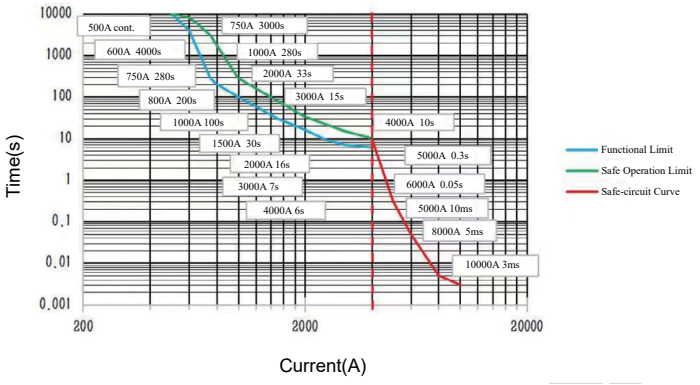
	Product Family		GCA500 Series
Electric Type	**Main Contacts Arrangement**		SPST-NO
	Media Type when Cutting-off		Inactive Gas
	Auxiliary Contacts		SPST-NO
Main Contacts Related Parameters & Limits	**Main Contacts Polarity**		Without Polarity
	Rated Voltage		1000Vdc
	Rated Current		500A
			≤0.25mΩ(@In=500A)
	Operate Time (at 20°C)		50ms Max.
	Release Time(at 20°C, Arc extinguishing included)		20ms Max.
	Auxiliary Contacts Related Parameters (500A)		8V/100mA
Endurance	**Mechanical Life**		300,000 Cycles
	Electric Life		1000V/ 500A 500 Cycles
			500 V/2000A 1 Cycle
Dielectric Parameters	**Insulation Resistance**	**Between Main Contacts**	1,000MΩ(@1,000Vdc 1 min)
		Between Contacts and Coil	
		Between Main Contacts and Auxiliary Contacts	
	Dielectric Strength	**Between Main Contacts**	4,300 Vac 1 min, Leakage Current ≤1mA
		Between Contacts and Coil	
		Between Main Contacts and Auxiliary Contacts	
Mechanical Parameters	**Shock, 1/2 Sine**		20G peak, 11ms, 1/2 sine wave (coil powered)
	Vibration, Sine		5G peak, 10 - 55Hz, sine wave
Environment	**Operating Ambient Temperature**		-40˚C ~ +85˚C
	Operating Ambient Humidity		5% ~ 85% RH
	Altitude		≤4000m
Weight 500A			Approx. 785g

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COIL

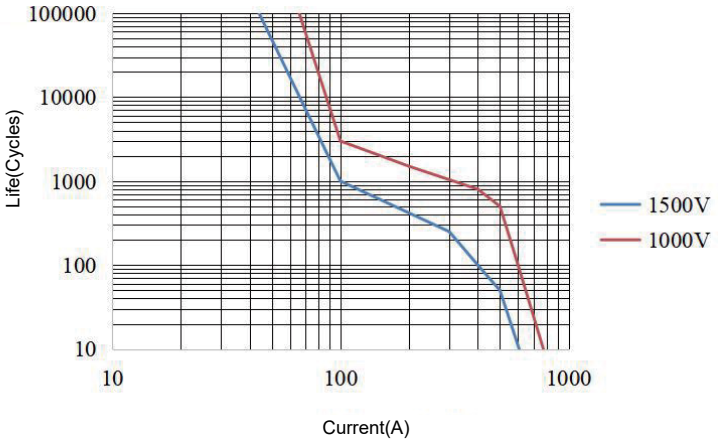
Nominal Voltage (Vdc)	12	24
Range of Working Voltage (Vdc)	0.85Us ~ 1.1Us	
Pick-up Voltage (at 20°C) (Vdc)	≤9	≤18
Drop-out Voltage (at 20°C) (Vdc)	≥1.2	≥2.4
Coil Power (W)	Pick-up ~50W / Holding ~5W	
Holding Current (A)	Pick-up ≤4.2 / Holding ≤0.42	Pick-up ≤2.1 / Holding ≤0.21

CURRENT ENDURANCE CURVE



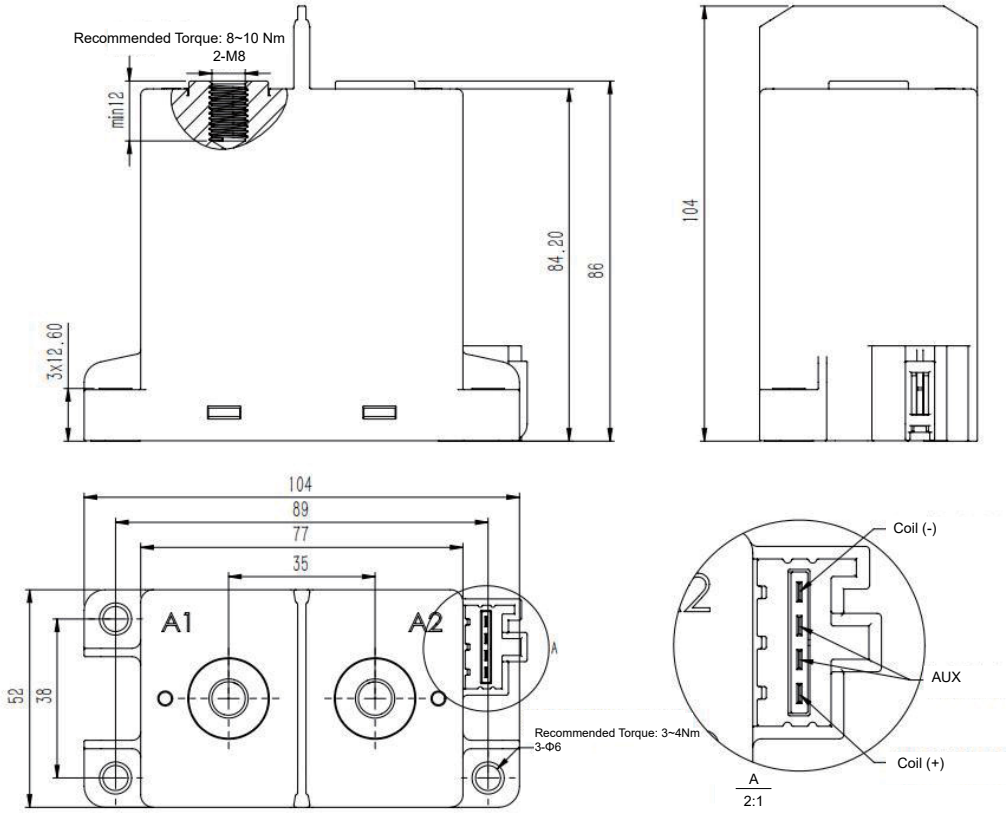
The above data was measured at the temperature of 85°C with the lead that cross-sectional area ≥ 240mm².
The data is for reference only and should not be used directly to select the fuse.

ELECTRIC LIFE CURVE



1, The rated electrical life of the product is based on the resistance load test.
2, The figure above is drawn according to the estimation of test and inferred data, and it is recommended that users test and confirm according to the actual use of the line.

DIMENSIONS



Notes:

1, Unit:mm
2, Tolerance(not specified)
Dimension 0~30mm: ±0.5
Dimension 30~60mm: ±1.2
Dimension 60~120mm: ±1.2
Dimension >120mm: ±2.0

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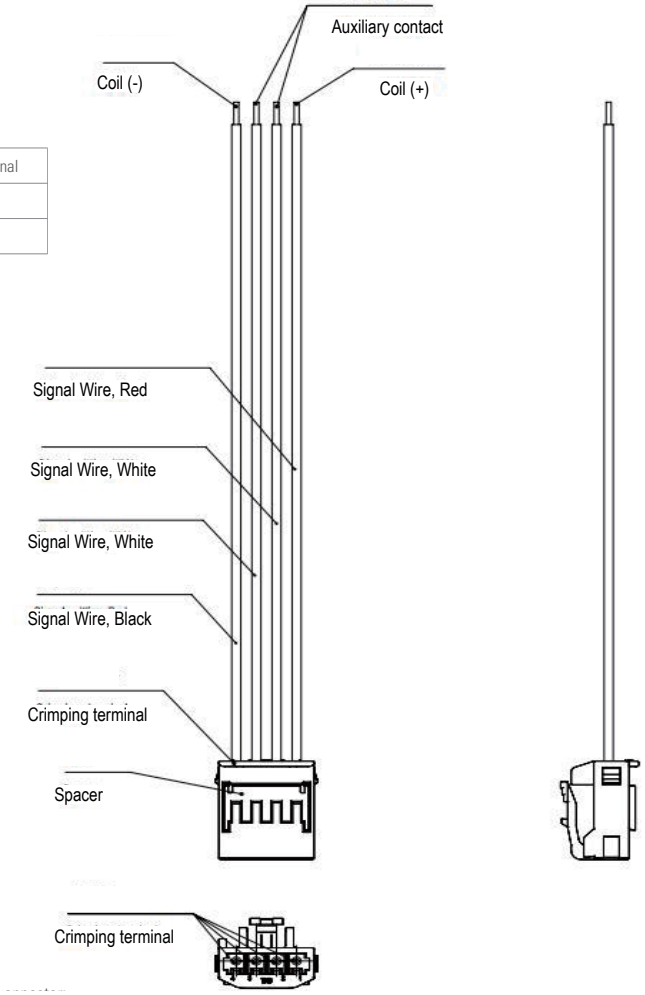
Hecommended connector:

①THB connector:0488701

②Yazaki connector:7283-1044

Supplier	Signal Wire	Female housing	Spacer	Crimping terminal
THB 0488701	UL 3266 20AWG	0488702	0488703	0117505
Yazaki7283-1044	UL 3266 20AWG	7283-1044	7157-4012	7116-4020

Note: connector are optional parts.



ORDERING OPTIONS

Example Part Number: GCA501BB

GCA50 - 1 - B - B

Family

GCA500

Mounting

1= Upright

Coil Voltage

B= 12 Vdc, Dual coils
C= 24Vdc, Dual coils

Auxiliary Contacts

B= SPST-NO Normally Open

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INSTALLATION, WIRING AND USAGE

Installation of Contactor

1. The tightening torque for all screws shall be within the specified range. Exceeding the specified torque or deviating from perpendicular installation will cause stripped threads or physical damage to the contactor.
2. Avoid dropping the contactor. Accidental dropping may alter mechanical parameters even if electrical performance remains unchanged, potentially rendering the contactor unable to meet performance specifications and even causing electric shock, fire, or other damage.
3. When installing the contactor body with screws, ensure that flat washers and spring washers are used to guarantee installation strength. It is also recommended to use shims at the bottom for optimal torque.

Circuit Wiring

1. For inductive loads (L loads) with L/R > 1ms, it is recommended to connect surge suppression devices in parallel. Failure to do so may reduce electrical lifespan and cause poor interruption.
2. Ensure correct installation according to the polarity requirements indicated on each product's housing. Reverse terminal connection may cause overheating, fire, or other accidents.
3. When installing busbars, avoid applying excessive load to the terminals, as this may impair witching performance. Before installation, maintenance, or trouble-shooting, always disconnect the power supply between the contactor and connectors, sockets, or other connected parts.

Time interval of contactor action

For repeated operations, allow sufficient time between actions. To avoid malfunctions, it is recommended to maintain an interval of more than 1 second between two operations.

WARNINGS



RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product may become hot during operation. 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 product
- Verify all connections are secure and reinstall all safety covers before turning on power.

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

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