



## FEATURES

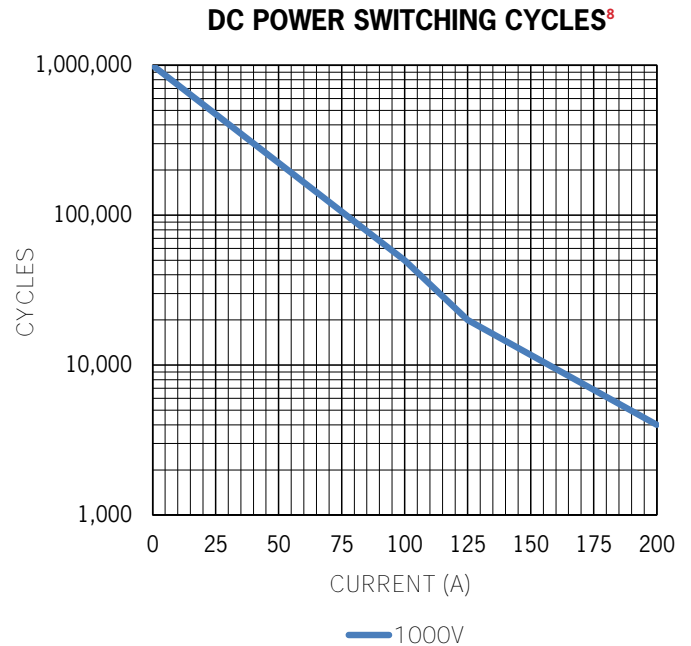
- Small, compact contactor for switching 1000+Vdc
- UL508 Recognized and load break rated for 1000vdc systems
- Designed to meet UL1604 for hazardous locations, class I and II, Div2 and class III
- Patented **EPIC®** Hermetic Seal – Exceeds IP67-69 specifications – No exposed arcing to open air environments
- Perfect for solar, photovoltaic, inverter systems, battery packs, combiner boxes, DC arc fault interrupter systems or any other high voltage DC system
- High Efficiency Dual DC Coils – Very low 12, 24, or 48Vdc continuous power coils with no EMI emissions or cross-talk on your system control power – Ideal for battery powered systems or where low coil power consumption is needed
- Stand up mounting with integrated safety cover – Finger safe, touch safe protection

## PRODUCT SPECIFICATIONS

See page 4 for IEC Specifications

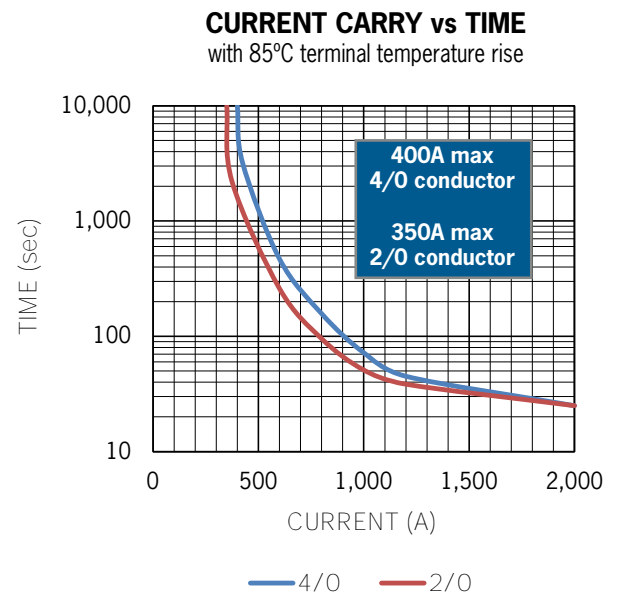
Specifications	Units	Data
Contact Arrangement		
Main	Form X	SPST-NO
Auxiliary (2A, 24VDC) <sup>9</sup>	Form A or B	SPST-NO or SPST-NC
Mechanical Life	cycles	1,000,000
Contact Resistance <sup>1</sup>		
Max	mohms	0.4
Typical	mohms	0.15 to 0.3
Operate Time <sup>2</sup>		
Max	ms	20
Typical	ms	13
Release Time, Max	ms	12
Insulation Resistance <sup>3</sup>	Mohms	100
Dielectric At Sea Level (Leakage < 1mA)	VRMS	4,300
Shock, 1/2 Sine, 11ms	G peak	20
Vibration, Sinusoidal (500-2000 Hz Peak)	G	15
Ambient Temp Range		
Operating <sup>4</sup>	°C	-55 to +85
Storage	°C	-70 to +150
Weight, Typical	Kg (Lb)	0.44 (0.98)
Environmental Seal	Exceeds IP67 & IP69K	
Salt Fog	MIL-STD-810	

## POWER SWITCHING AND CURRENT CARRY RATINGS



## COIL RATINGS at 25°C

Coil P/N Designation	B	C	F
Coil Voltage, Nominal	12 VDC	24 VDC	48 VDC
Coil Voltage, Max	16 V	32 V	60 V
Pick-Up Voltage, Max <sup>5, 7</sup>	8 V	16 V	40 V
Drop-Out Voltage	0.5 to 4 V	2 to 7.5 V	4 to 15 V
Pick-Up Current, Max (75 ms) <sup>6, 7</sup>	4.3 A	1.6 A	0.98 A
Coil Current <sup>5</sup>	0.24 A	0.09 A	0.044 A
Coil Power <sup>6</sup>	2.9 W	2.1 W	2.1 W
<b>Internal Coil Suppression</b>			
Coil Back EMF	55 V	55 V	125 V
Transients, Max (13 ms)	±50 V	±50 V	±75 V
Reverse Polarity	16 V	32 V	64 V





## DIMENSIONS

### Mounting

M5 Bolts

### Case Material

DuPont Zytel FR50  
(25% Glass Filled Nylon)

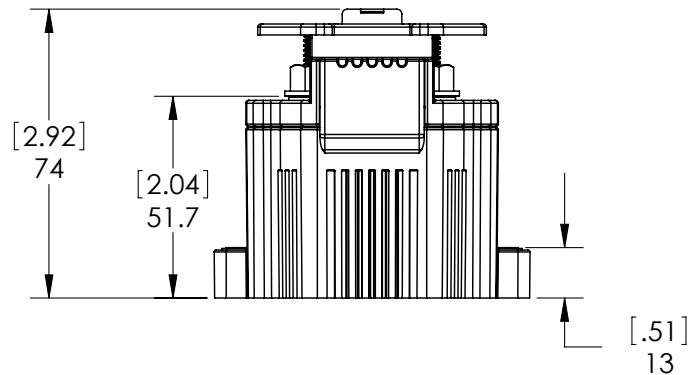
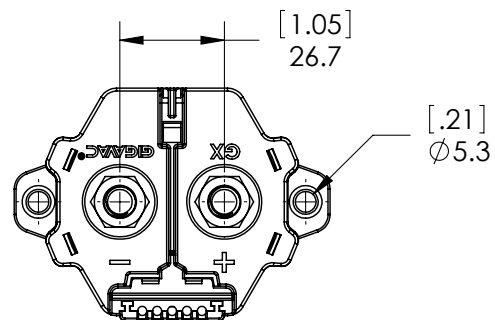
### Power Connection

Stainless M8x1.25 Stud  
Stainless M8x1.25 Flanged Nut

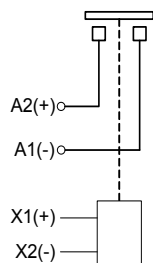
Torque 10Nm [90in-lb] max

### Coil Wire

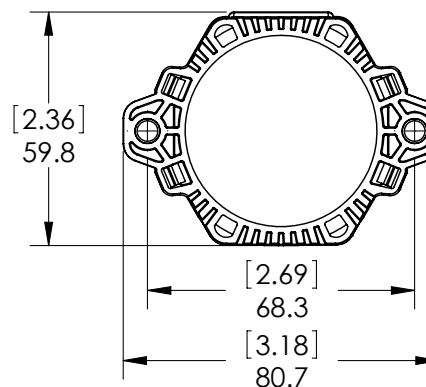
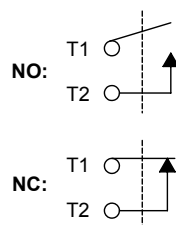
Silicone, 20 AWG, UL: VW-1



### Power Contacts



### Auxiliary Contacts (optional)



## PART NUMBER SYSTEM

HX21	B	A	B
Coil Voltage	B = 12 Vdc, Internal Coil Suppression		
	C = 24 Vdc, Internal Coil Suppression		
	F = 48 Vdc, Internal Coil Suppression		
Coil Termination		A = Flying leads 38 cm (15 in)	
		B = Flying leads 61 cm (24 in)	
		C = Flying leads 122 cm (48 in)	
Auxiliary Contact <sup>8</sup>			Blank = None
			B = SPST, Normally Open
			C = SPST, Normally Closed

## APPLICATION NOTES

- Contactors feature internal transorb for coil suppression. **No external diodes** should be added across the coil. The use of additional external coil suppression can slow the release time and invalidate the life cycle ratings, or can cause the contactor not to be able to interrupt the maximum current specified. If lower coil back EMF is required, please contact GIGAVAC for assistance.
- Power switching lifecycles are based on **current flow** from A2(+) to A1(-). For best breaking performance, the contactor should be installed so that current flows from A2(+) to A1(-). There are cases where the contactor will interrupt power in the opposite direction but please contact GIGAVAC to confirm suitability. Direction of current flow is not relevant during make or when flowing on closed contacts. For bi-directional contactors, please contact GIGAVAC.
- Applications with **capacitors** will require a pre-charge circuit.
- Electrical life rating is based on resistive load with 27μH maximum inductance in circuit. Because your application may be different, we suggest you test the contactor in your circuit to verify life is as required.
- End of life is defined as when the dielectric, insulation resistance or contact resistance fails the specifications listed.
- Contact GIGAVAC regarding DC Power Switching Cycle Life for part numbers that include auxiliary contacts.

## IEC60947-4-1, REPORT E320908-A1 SPECIFICATIONS

Specifications	Data
Utilization Category	DC-1
Rated Duty	Continuous
Conventional Thermal Current	350A
Ambient Temperature	75°C
Rated Impulse Withstand Voltage	6kV
Rated Insulation Voltage	1,000VDC
Rated Make/Break Capabilities	100A
IP Ratings	Will meet/exceed IP67, IP69
Pollution Degree	3
Short Circuit Rating	N/A
Min Terminal Conductor Size	1AWG at 100A
Max Terminal Conductors Size	500mcm conductor
Max Number of Conductors	1
Conductor Material	(Cu) Copper only
Terminal Torque	10Nm [90in-lb] (max)
Mounting Hole Torque	4Nm [35in-lb] (max)
Mounting Position	Any

### Notes & Definitions:

- 1 Contact resistance measured at currents higher than 100A.
- 2 Operation time is measured at 25°C and includes maximum 7ms bounce.
- 3 Insulation resistance is 50 Mohms after life.
- 4 Contactor can operate up to 125°C in special cases - contact GIGAVAC for details.
- 5 **Contactor has two coils.** Both are used for pick-up, and then in approximately 75 milliseconds, one coil is electronically removed from the coil drive circuit. The remaining coil supplies low continuous hold power sufficient for the contactor to meet all of its specified performance specifications. This provides low coil power without PWM electronics that can cause EMI emissions and/or cross-talk on control power.
- 6 Contactor is operated by a coil that changes resistance with temperature. Since pick-up current, coil current and coil power are specified at nominal voltage, they will be lower than indicated at temperatures above 25°C and higher than indicated at temperatures below 25°C. Similarly, pick-up and drop-out voltages will be higher than indicated at temperatures above 25°C and lower than indicated at temperatures below 25°C.
- 7 For pick-up testing of contactors with dual coils, the voltage can not be ramped up slowly, but must be applied instantly to at least the maximum pick-up voltage. Otherwise, the contactor will not pick-up.
- 8 Limit make current to 600A to avoid contact welding. Contact GIGAVAC regarding DC Power Switching Cycle Life for part numbers that include auxiliary contacts.
- 9 Auxiliary contact rating is 2A, 24Vdc Resistive load, 100,000 cycles. Minimum current is 0.1mA, 5V. The auxiliary contact is mechanically linked to the main power contacts.

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