



### FEATURES

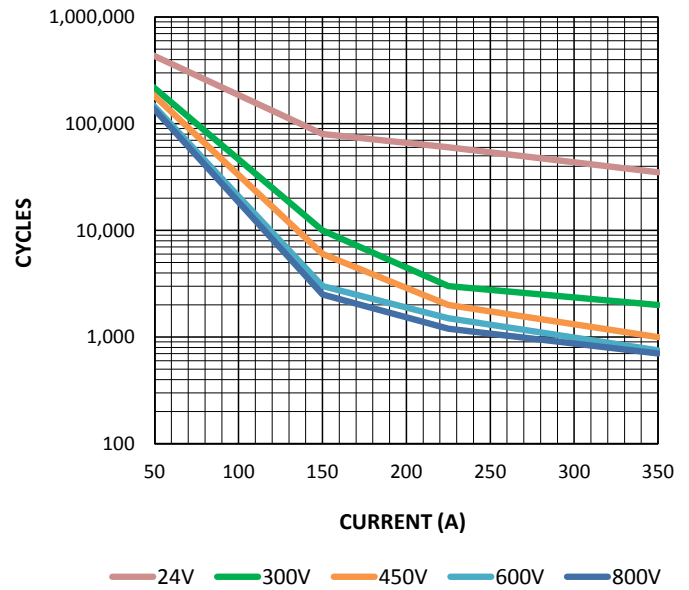
- PCB mountable option allows lowest cost OEM solution by eliminating need for cables, wires and connector.
- Hermetically Sealed – Designed to meet: UL1604 for Class I & II, Div 2 and Class III for use in hazardous locations, IP67 for temporary water immersion for 30 min, SAE J1171 - external ignition protection, and ISO8846 for protection against ignition around flammable gasses.
- Meets CE Conformance standards.
- High Efficiency Dual DC Coils – Very low 12, 24, or 48VDC continuous coil power with no EMI emissions or cross-talk on your system control power. Ideal for battery powered systems or where low power is needed. PWM coil options provide additional drive control flexibility.
- Built-in coil suppression for all DC coils – Saves you engineering time and parts cost to add external coil suppression.
- Not position sensitive – can be mounted in any position for ease of installation.

## PRODUCT SPECIFICATIONS

Specifications	Units	Data
<b>Rated Voltage<sup>11</sup></b>	V	800
<b>Contact Arrangement</b>		
Main	Form X	SPST-NO
Auxiliary <sup>1</sup>	Form A or B	SPST-NO or SPST-NC
<b>Mechanical Life</b>	cycles	1,000,000
<b>Contact Resistance</b>		
Max	mohms	0.4
Typical	mohms	0.3
<b>Insulation Resistance<sup>2</sup></b>	Mohms	100
<b>Dielectric at sea level (leakage &lt; 1mA)</b>	VRMS	2,500
<b>Shock, 1/2 Sine, 11ms</b>		
Actuated (closed)	G	50
Non Actuated (open)	G	25
<b>Vibration, Sinusoidal (10-2000 Hz peak)</b>	G	25
<b>Environmental Seal</b>	Exceeds IP67 & IP69K	
<b>Salt Fog</b>	MIL-STD-810	
<b>Short Circuit Current (20ms)</b>	A	4000
<b>Max Break Current @ 400V (1 cycle)</b>	A	3000
<b>Max Break Current @ 800V (1 cycle)</b>	A	900

## POWER SWITCHING

### DC POWER SWITCHING CYCLES



## COIL RATINGS at 25°C

Coil P/N Designation	B <sup>3</sup>	C <sup>3</sup>	F <sup>3</sup>	M	N	P <sup>4</sup>	Q <sup>4</sup>
<b>Coil Voltage, Nominal (VDC)</b>	12	24	48	12/24	48	12/24	48
<b>Coil Type</b>	Dual	Dual	Dual	PWM	PWM	External PWM <sup>4</sup>	External PWM <sup>4</sup>
<b>Coil Voltage, Max (V)<sup>5</sup></b>	16	32	64	36	95		
<b>Pick-Up Voltage, Max (V)<sup>5,6,7</sup></b>	8	16	40	8.5	32		
<b>Drop-Out Voltage (V)<sup>5</sup></b>	0.5	2	4	6.5	20		
<b>Pick-Up Current, Max (A) (75 ms)<sup>5,6</sup></b>	3.9	1.6	0.97	3.6	0.9		
<b>Coil Current (A)<sup>5</sup></b>	0.23	0.097	0.042	0.13A @12VDC 0.07A @24VDC	0.04A @48VDC		
<b>Coil Power (W)<sup>5</sup></b>	2.8	2.3	2	1.7	1.9		
<b>Operate Time, Max (ms)<sup>10</sup></b>	20						
<b>Release Time, Max (ms)</b>	12						
<b>Internal Coil Suppression</b>	TVS				N/A		
<b>Coil Back EMF (V)</b>	55	55	125	0	0		
<b>Transients, Max (V) (13 ms)</b>	±50	±50	±75	±60	±100		
<b>Reverse Polarity (V)</b>	16	32	64	100	100		



**UPRIGHT MOUNT DIMENSIONS**

**Auxiliary Leads**

B=SPST-NO  
 Blue Lead = T1  
 White Lead = T2  
 C=SPST-NC  
 Orange Lead = T1  
 White Lead = T2  
 (Refer to Part Number System on page 7)

**Coil Leads**

Red Lead = X1(+)  
 Black Lead = X2(-)  
 (Refer to Part Number System on page 7)

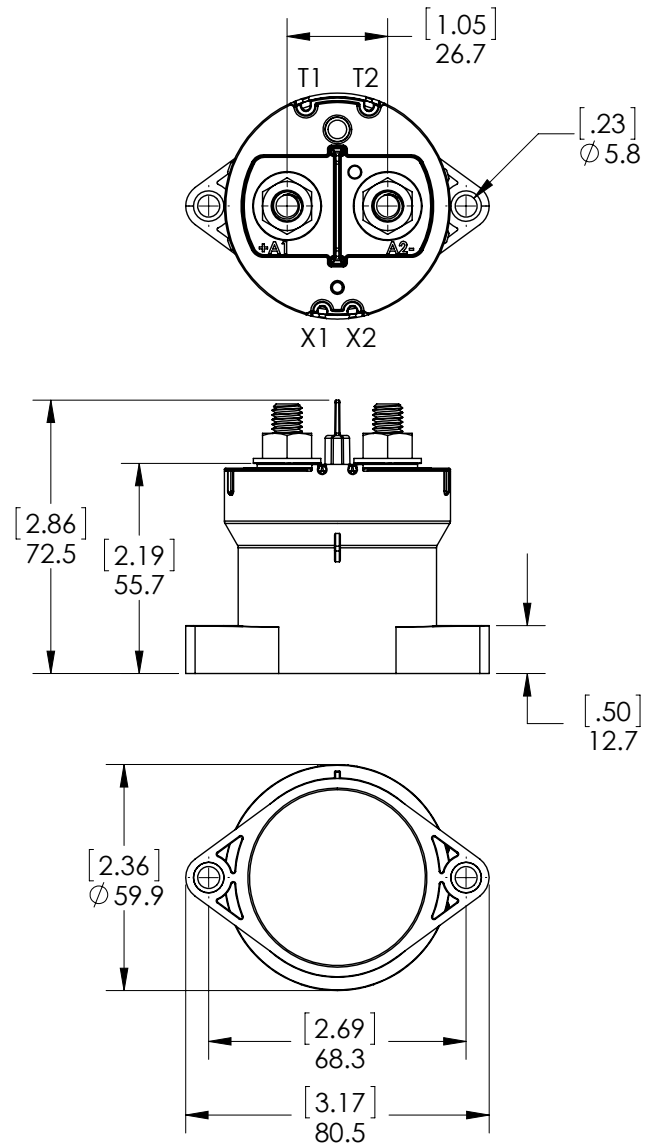
**Upright Mounting**

M5 or No. 10 Screws  
 Torque 1.7-4 Nm [15-35 in-lb]

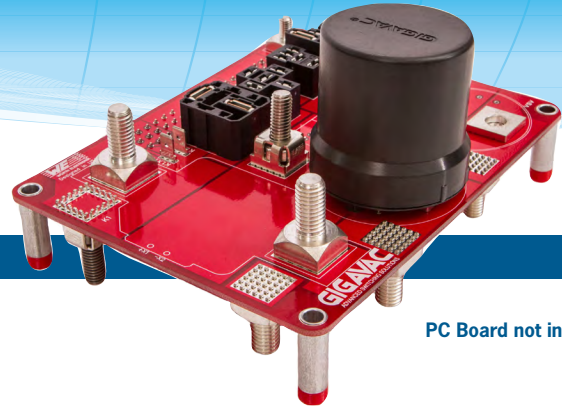
**Upright Mount Power Connection**

Silver Plated Copper M8x1.25 stud  
 Stainless M8x1.25 flanged nut  
 Torque 10 Nm [90 in-lb] max

**Upright Mount**



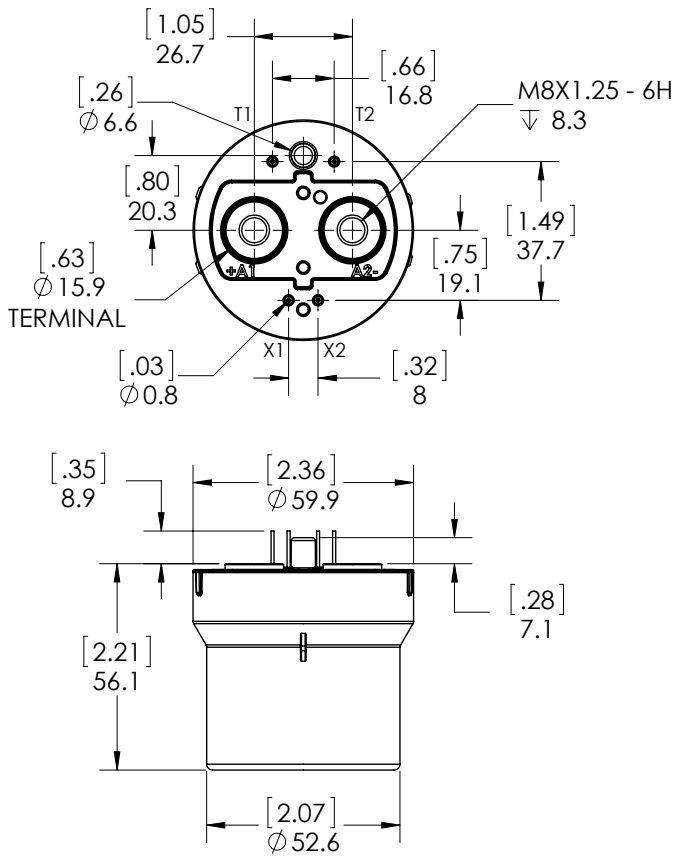




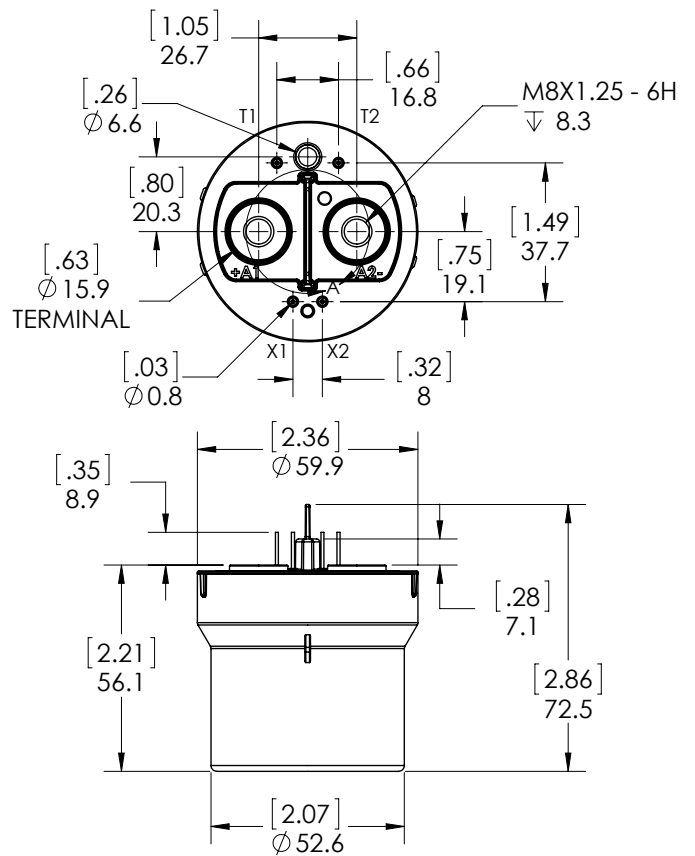
PC Board not included

**PCB MOUNT DIMENSIONS**

**PCB Mount**



**PCB Mount with Barrier**

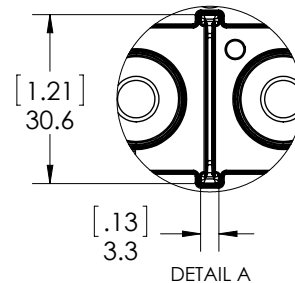


**PCB Mounting / Power Connection**

M8x1.25 bolt  
Torque 10 Nm [90 in-lb] max

**PCB Coil and Auxiliary Pin Material**

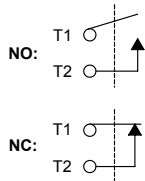
510 Phosphor Bronze, Tin Plated



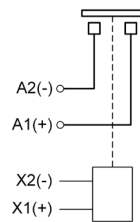


## SPECIFICATIONS AND CURRENT CARRY RATINGS

### Auxiliary contacts (optional)



### Power Contacts



### Temperature and Weight

Operating ambient Temp Range = -55 to +85°C<sup>3</sup>  
Storage ambient Temp Range = -70 to +150°C

Weight, typical:

Upright Mount = 0.44 kg (0.97 lb)

Side Mount = 0.45 kg (0.99 lb)

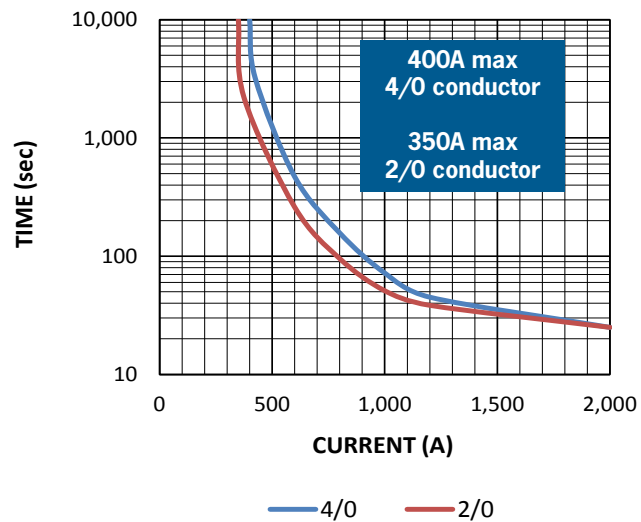
PCB Mount = 0.38 kg (0.84 lb)

### Packaging

24 units per shipping box

21 in x 18 in x 4 in shipping box

**CURRENT CARRY vs TIME**  
with 85°C terminal temperature rise



## PART NUMBER SYSTEM

GV24	1	B	A	B
Mounting	1 = Upright			
	2 = Side			
	4 = PCB, M8			
	5 = PCB, M8, with barrier			
Coil Voltage		B = 12 Vdc, Internal Coil Suppression		
		C = 24 Vdc, Internal Coil Suppression		
		F = 48 Vdc, Internal Coil Suppression		
		M = 12/24 Vdc PWM		
		N = 48 Vdc PWM		
		P = 12/24 Vdc <sup>4</sup>		
Coil Termination			A = Flying leads 38 cm (15 in)	
			P = Pins (PCB)	
Auxiliary Contacts				X = None
				B = SPST-NO Normally Open
				C = SPST-NC Normally Closed

## APPLICATION NOTES

- Contactors feature internal transient voltage suppressor for coil suppression. **No external diodes** should be added across the coil.
- Power switching lifecycles are based on **current flow** from A1(+) to A2(-). For best breaking performance, the contactor should be installed so that current flows from A1(+) to A2(-). 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 exceeds the specifications listed.

## Notes & Definitions:

- 1 Auxillary 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.
- 2 Insulation resistance is 50 Mohms after life.
- 3 Contactor can operate up to 125°C in special cases - contact GIGAVAC for details.
- 4 Customer must provide an external economizer that meets the Pick-up Current, Coil Current, and Pick-up Current Time. For detailed information click here [Application Note AN-016](#) or visit [www.gigavac.com/application-notes](http://www.gigavac.com/application-notes).
- 5 Because the contactor is operated by a coil that changes resistance with temperature:  
  
Maximum coil voltage will be lower than indicated at temperatures above 25°C, and higher than indicated at temperatures below 25°C.  
  
And because Nominal Coil Voltage has been assumed for the Pick-up Current, Coil Current and Coil Power specifications, Current/Wattage will be lower than indicated at temperatures above 25°C and higher than indicated at temperatures below 25°C.  
  
Pick-up Voltage and Drop Out Voltage will be lower than indicated at temperatures below 25°C and higher than indicated at temperatures above 25°C.
- 6 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 the lowest coil power possible without the use of PWM electronics that have been known to cause EMI emissions and/or cross-talk on your system control power.
- 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 or Current. Otherwise, the contactor will not pick-up.
- 8 These DC coils have built-in coil suppression. 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.
- 9 All contact ratings and coil versions may not be UL recognized. Contact GIGAVAC for a copy of the applicable sections of the test report.
- 10 Operation time is measured at 25°C and includes maximum 7mx bounce.
- 11 Rated voltage refers to max voltage for which make/break load cycles are provided. Contactor can be used in higher voltage systems. Contact GIGAVAC for more info.