



- **Rugged EPIC®Ceramic-to-Metal Seal Rated to 175°C** –Reduced risk of fire or meltdown in over-current conditions compared to the less-durable epoxy seal.
- **EPIC®Hermetic Seal** –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.
- **High Efficiency Dual Coils** –Unlike the PWM coil economizer found in other contactors that can cause cross-talk on your system control power or radiate noise, the GLVAC GX21 uses two coils. One drops out after

the contactor is energized providing low power to keep the contactor energized.

- **No Exposed Coil Electronics** –The GLVAC GX21 can operate almost anywhere, even under water-unlike other contactors with exposed PWM coil electronics that can fail in harsh environments.
- **Built-in Power Terminal Safety Cover** –Extra assurance of a safer connection without the use of metal fastening screws. Can also be easily permanently removed in applications where not needed.
- **Fully RoHS Compliant** –The GX21 is fully compliant and is better for the environment and future generations.
- **Built-in coil suppression** –Saves you THE engineering time and parts cost to add external coil suppression.
- **Clear & Precise Specifications** –No guessing to SEE if GLVAC’s GX21 contactor will work in your application.

## Notice for New Applications

If your application is 100A or higher we suggest you consider GLVAC's 150 Amp **GX11**, 225 Amp **GX12**, or 350Amp **GX14** that have convenient chassis level bus bar type power terminations that are designed to accept larger size cables and lugs.

Make & Break Resistive Current with 1/0 cable and 50° terminal temp rise	Contact Voltages & Life Cycle Ratings DC or 50/60 Hz AC					
	24V	48V	72V	120V	350V	750V
<b>150A</b> -(75°C Ambient) <b>1/</b>	<b>150,000</b>	<b>100,000</b>	<b>40,000</b>	<b>20,000</b>	<b>7,500</b>	<b>1,200</b>
<b>125A</b> -(75°C Ambient) <b>1/</b>	180,000	120,000	48,000	24,000	9,000	1,440
<b>100A</b> -(75°C Ambient) <b>1/</b>	225,000	150,000	60,000	30,000	11,250	1,800
<b>75A</b> -(75°C Ambient) <b>1/</b>	300,000	200,000	80,000	40,000	15,000	2,400
<b>50A</b> -(75°C Ambient) <b>1/</b>	435,000	290,000	116,000	58,000	21,750	3,480
<b>30A</b> -(75°C Ambient) <b>1/</b>	750,000	500,000	200,000	100,000	37,500	6,000
<b>20A</b> -(75°C Ambient) <b>1/</b>	900,000	600,000	240,000	120,000	45,000	7,200
<b>225A</b> -(50°C Ambient) <b>2/</b>	127,500	85,000	34,000	17,000	6,375	1,020
<b>Max Break A, 2 cycles (75°C Ambient) 1/</b>	2,500A	2,000A	1,500A	1,000A	900A	600A
<b>Max Make, 10 cycles (75°C Ambient) 1/</b>	1,400A	1,100A	800A	600A	500A	350A

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. If your application requires a higher current rating, you may want to consider the GLVAC 225 Amp **GX12 EPIC<sup>®</sup> Sealed Contactor** or the 350 Amp **GX14 EPIC<sup>®</sup> sealed contactor**.

**1/** Assumes UL508 ratings with 1/0 cables, UL508 max ambient temperature of 75°C as shown,

and max. UL508 terminal temperature rise of 50°C.

At 85°C ambient, contactor can also meet all of its 75°C specifications but the terminal temperature can rise can be up to 60°C, which is higher than the 50°C rise allowed by UL508 and can be higher than some cable insulation ratings. **2/** Assumes UL508 ratings with 1/0 cables, at a lower 50°C UL508 ambient temperature, and max. UL508 terminal temperature rise of 50°C.

		<b>75°C / 50°C</b>
<b>Cable size 1/</b>		1 / 0
<b>Continuous, UL508 Max 1/</b> 10 seconds (1 time) 100 Seconds (1 time) 300 Seconds (1 time)	<b>Amp Amp</b> Amp Amp	<b>150 / 225</b> 375 / 560 240 / 360 200 / 300
<b>Starter Carry –Inrush 250 ms (10 repeats 1/ 2/)</b>	Amp	NA / 2,000
<b>Starter Carry -Cranking 10 sec (10 repeats 1/ 2/)</b>	Amp	NA / 500
<b>Maximum terminal Temp, Continuous</b>	DegC	175
<b>Maximum terminal Temp, Intermittent</b>	DegC	225

If your application requires a higher current rating, you may want to consider the GLVAC 225 Amp **GX12 EPIC® Sealed Contactor** or the 350 Amp **GX14 EPIC® sealed contactor**..

**1/** Assumes UL508 ratings with 1/0 cables, ambient maximum UL 508 temperature of 75°C, and maximum UL508 terminal temperature rise of 50°C. Contactor can also carry the higher current as shown for 50°C ambient, and meet all of the UL508 temperature rise requirements.

At 85°C ambient, contactor can also meet all of its 75°C specifications but the terminal temperature can rise can be up to 60°C, which is higher than the 50°C rise allowed by UL508 and can be higher than some cable insulation ratings.

The maximum terminal temperature rating of the contactor is 175°C, which means much higher currents than shown can be carried and switched. However, this temperature is much higher than most cable insulation ratings, which mean busbars must be used. Contact GLVAC for assistance for higher current applications using this contactor.

**2/** Rating consists of combined inrush + cranking current at the times specified, with 2 seconds off between cycles. This is higher current than is required for UL1107 for marine battery switches.

**COIL RATINGS - see below for high efficiency coils**

Nominal Volts	12Vdc	24Vdc	48Vdc	72Vdc	120Vd c	120Va c, 50/60H z	240Va c, 50/60H z
<b>Coil P/N Designation</b>	B	C	F	H	J	K	L
<b>Max Volts</b>	14	28	56	84	140	140	280
<b>Pick-up, Volts, Max</b>	7.5	15	28	46	72	80	144
<b>Hold, Volts, Min</b>	4	9	18	28	46	46	92
<b>Drop-Out, Volts, Min</b>	0.5	0.5	1.8	2.7	4.5	4.5	9
<b>Coil Resistance @ 25°C (Ohms ±10%)</b>	17	85	335	850	2125	N/A	N/A
<b>Coil Current, mA, Max at nominal Voltage</b>	700	280	150	90	56	56	28
<b>Coil Back EMF (volts) -Built in suppression 1/</b>	55	55	100	150	288	N/A	N/A

Ratings are at worse case temperature extremes, except coil resistance and current are at 25°C.

**1/** 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 GLVAC for assistance.

Nominal Coil Voltage	12Vdc	24Vdc
<b>Coil P/N Designation</b>	S	T
<b>Coil Voltage (Max) 1/</b>	15	30
<b>In-Rush Current Max (75 ms) -Amps 2/ 3/</b>	1.8	0.9
<b>Hold Current after in-rush (Avg.) -Amps 3/</b>	0.090	0.045

<b>Hold Power after in-rush (Avg.) –Watts 3/</b>	1.1	1.1
<b>Pick-up, Volts, Max 2/ 4/ 5/</b>	9	15
<b>Hold, Volts, Min 5/</b>	5	10
<b>Drop-Out, Volts, Min 5/</b>	1.0	1.5
<b>Coil Back EMF (volts) 6/</b>	45	45

Ratings are at 25°C. For specific values at other temperatures, please [contact GLVAC](#).

**1/** Because the contactor is operated by a coil that changes resistance with temperature, the maximum coil voltage will be lower than indicated at temperatures above 25C, and higher than indicated at temperatures below 25C.

**2/** Contactor has two coils. Both are used for pull-in, 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 crosstalk on your system control power.

**3/** Because the contactor is operated by a coil that changes resistance with temperature, and because Nominal Coil voltage has been assumed for the In-Rush, Hold Current and Hold Power specifications, Current/Wattage will be lower than indicated at temperatures above 25C and higher than indicated at temperatures below 25C.

**4/** 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 pull-in voltage or current. Otherwise, the contactor will not pick-up.

**5/** Because the contactor is operated by a coil that changes resistance with temperature, Pick-up Voltage, Hold Voltage, and Drop Out Voltage will be lower than indicated at temperatures below 25C and higher than indicated at temperatures above 25C.

**6/** 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 GLVAC](#) for assistance.

Specifications	Units	Specifications
<b>Contact Arrangement (main)</b>	FormX	SPST-NO
<b>Contact Arrangement (Auxiliary) 1/</b>	FormA	SPST-NO
<b>Mechanical Life</b>	cycles	1 million
<b>Contact Resistance Max @ rated carry current Typical @ rated carry current</b>	mohmsmohms	.4.15 to .3



<b>Operate time, 25°C Close (includes bounce) Max Close (includes bounce) Typical Bounce on close, Max Release time (includes arc time at max. break current)</b>	msmsmsms	2013712
<b>Insulation Resistance</b>	Mohms	100 <b>2/</b>
<b>Dielectric at sea level (leakage &lt; 1mA)</b>	VRMS	2,500
<b>Shock</b>	G's peak	20
<b>Vibration, Sinusoidal (500-2000 Hz peak)</b>	G's	15

<b>Operating ambient Temp Range</b>	°C	-55 to +85 <b>3/</b>
<b>Storage ambient Temp Range</b>	°C	-70 to +175
<b>Weight, Typical</b>	Kg (Lb)	0.50/(1.1)

**1/** Auxillary contact rating -2A, 24Vdc Resistive load, 100,000 cycles. Minimum current is 100mA, 8V. The auxiliary contact is mechanically linked to the main power contacts. **2/** 50 Mohms after life. **3/** Contactor can operate up to 125°C in special cases -contact GLVAC for details.



**PART NUMBER SYSTEM**

**GX21**

**B C A**

**Coil Voltage**

**B** = 12 Vdc with internal coil suppression

**S** = 12Vdc, Dual-Coil High Efficiency Option  
with internal coil suppression

**C** = 24 Vdc with internal coil suppression

**T** = 24 Vdc, Dual-Coil High Efficiency Option  
with internal coil suppression

**F** = 48 Vdc with internal coil suppression

**H** = 72 Vdc with internal coil suppression

**J** = 120 Vdc with internal coil suppression

**K** = 115 VAC, 50/60 Hz

**L** = 240 VAC, 50/60 Hz

**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** (same length as coil wire  
selection)

**Blank** = None

**B** = SPST, Normally Open

**POWER CONNECTION**

HARDWARE INCLUDED:  
STAINLESS M8X1.25 STUD  
STAINLESS M8X1.25 NUT  
STAINLESS LOCK WASHER  
STAINLESS FLAT WASHER

TORQUE 90 in-lb MAX

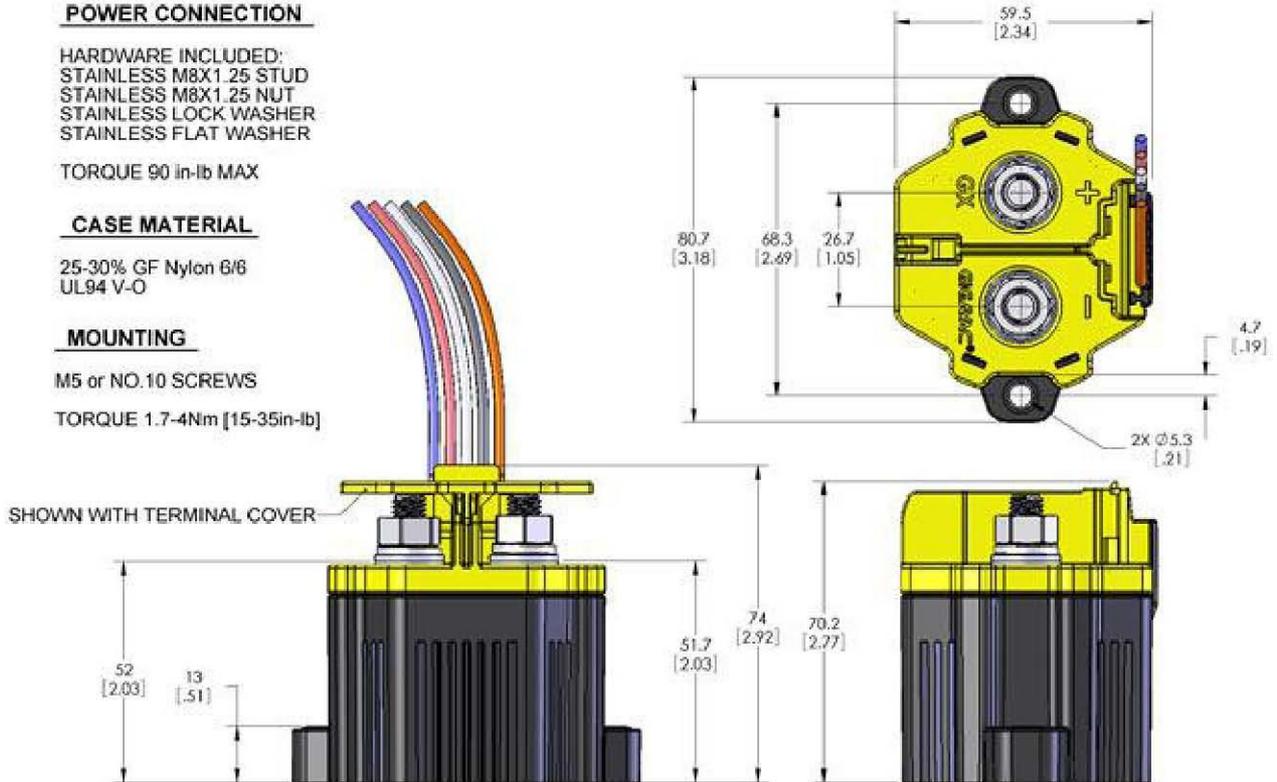
**CASE MATERIAL**

25-30% GF Nylon 6/6  
UL94 V-0

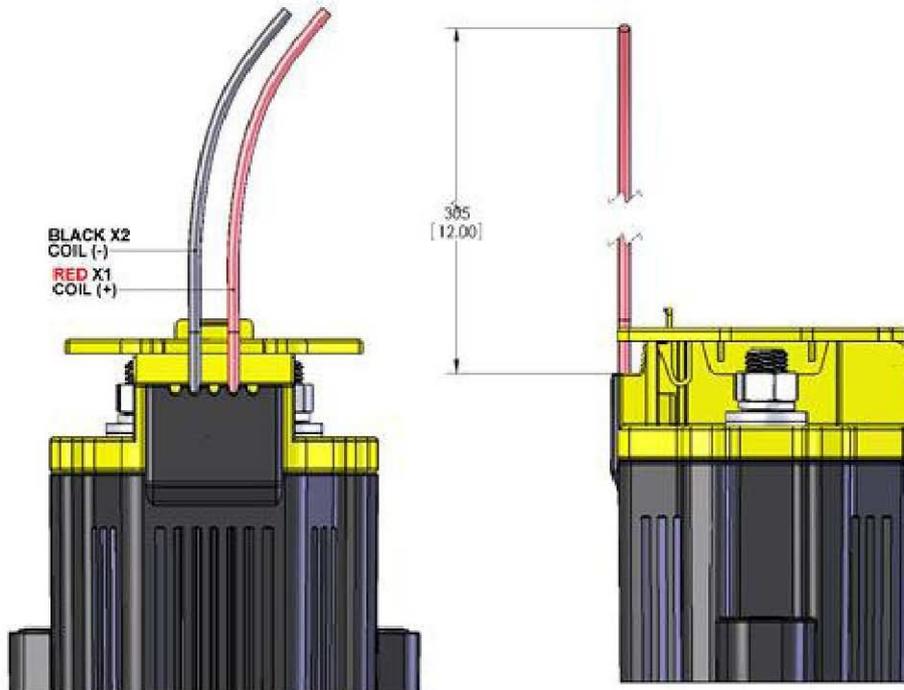
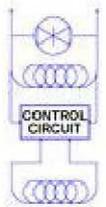
**MOUNTING**

M5 or NO.10 SCREWS

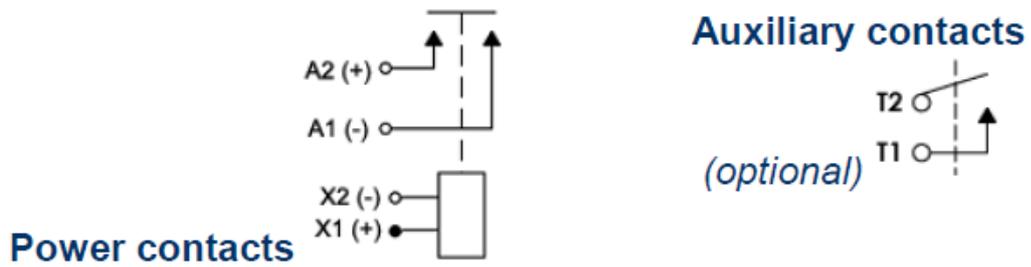
TORQUE 1.7-4Nm [15-35in-lb]



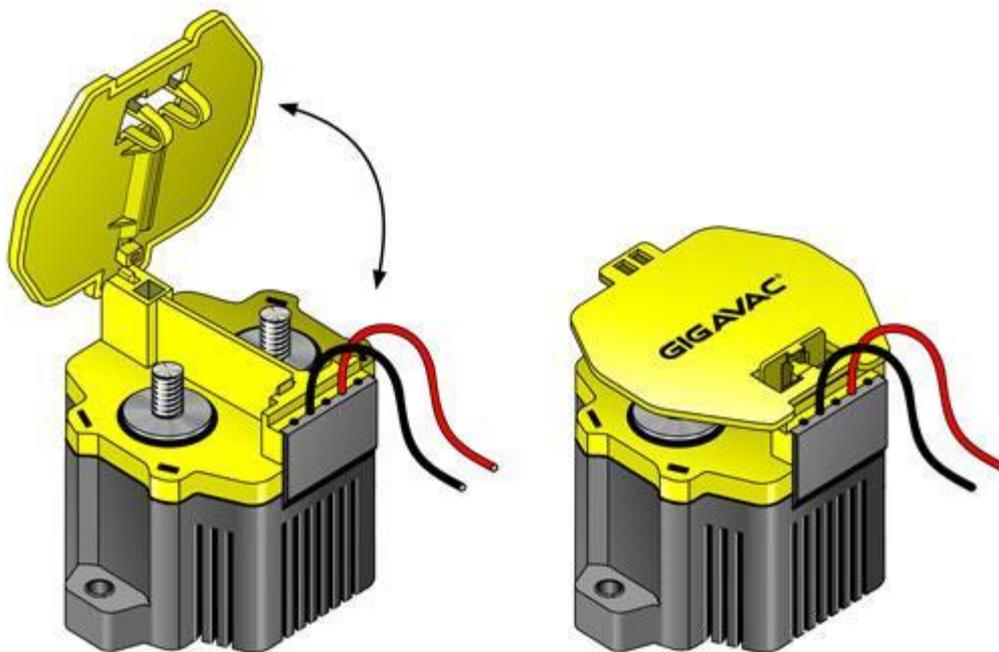
**DC DUAL COIL**



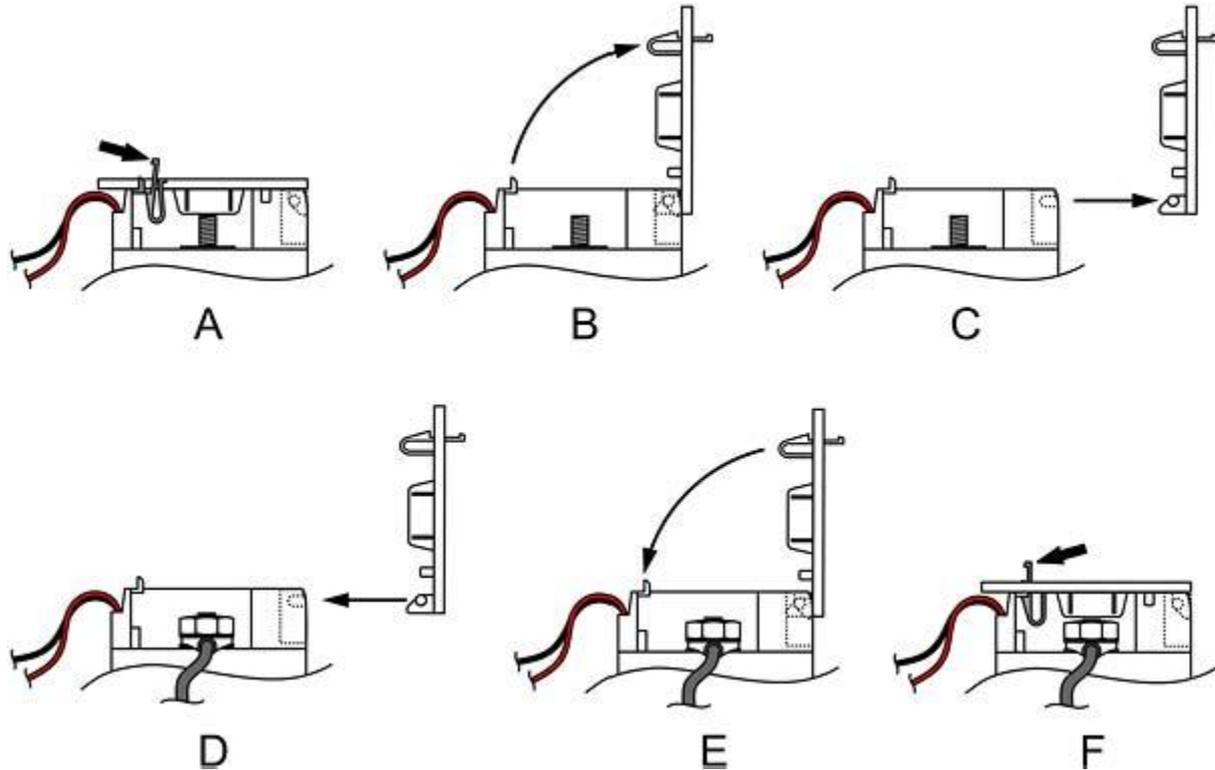
WIRE SPEC: SILICONE, 22AWG, -40C-150C, UL: VW-1



### To Lift and Remove the Terminal Safety Cover:



**A.** Push the tab of the cover to unlock it. **B.** Lift the cover as shown. It will pivot on the rear pin. **C.** If needed, remove the cover by pulling it straight back as shown. **D.** To place the cover back in its original position, replace the cover as shown. Follow step C in reverse. **E.** The cover can now pivot down to close. **F.** Make sure to push the locking tab into place.



## Application Information:

**1. WARNING-**When using more than one lug on a power terminal, make sure the primary power is closest to the contactor busbar, with the lower current lug on top, then the washer, then the lock washer, then the nut. **Improper order can cause severe overheating resulting in the possible melting of the connecting cable insulation.**

**2. EPIC<sup>®</sup>** sealing technology

**3. Relay Schematics and Forms**

**4.** For the more user friendly panel level terminations, you may want to check out the GLVAC EPIC<sup>®</sup>sealed 125 Amp [GX11](#), the 225 Amp [GX12](#), or the 350 Amp [GX14](#).