# HX360 Series

800 AMP 1500 VDC CONTACTOR

## Features

- Robust High Voltage/High Power load break bi-directional DC contactor
- Designed for high voltage Power conversion equipment OEM's: Photovoltaic/Battery inverters, battery pack designers, DC combiner boxes and other HVDC industrial drive systems
- Excellent isolation performance: 10kv withstand between open contacts for critical safety applications
- Mechanically linked SPDT auxiliary contacts for critical safety applications.
- Reliable indication of the main contacts in the closed position
- Hermetically Sealed - Exceeds IP67-69 specifications. No exposed arcing to open air environments.
- Designed to meet UL1604 for hazardous locations.

## Applications

- Energy Storage System
- DC fast charging
- Photovoltaic controls

## SPECIFICATIONS

| Specifications | | Units | Data |
|---|---|---|---|
| **Contact Arrangement** | **Main** | Form X | SPST-NO |
| | **Auxiliary** | Form C | SPDT |
| **Mechanical Life** | | cycles | 300,000 |
| **Auxiliary Mechanical Life**[1] | | cycles | 300,000 |
| **Contact Resistance**[2] | **Max @ rated carry current** | mohms | 0.3 |
| | **Typical @ rated carry current** | mohms | 0.15 |
| **Operate time, 25˚C** | **Close (includes bounce) Max** | ms | 60 |
| | **Close (includes bounce) Typical** | ms | 40 |
| **Release time** | | ms | 10 |
| **Release time (high current)** | | ms | 40 |
| **Insulation Resistance**[3] | | Mohms | 100 |
| **Dielectric at sea level (leakage < 1mA)** | | V | 5,375 |
| **Impulse Withstand Voltage (per IEC 61000-4-5)** | | kV | 10 |
| **Voltage Withstand (open contacts, 1 min. <1mA leakage)** | | kV | 10 |
| **Shock, ½ Sine, 11ms** | **Actuated (open)** | G peak | 20 |
| | **Non-Actuated (closed)** | G peak | 50 |
| **Vibration, Sinusoidal (500-2000 Hz peak)** | | G | 12 |
| **Temperature** | **Operating ambient Temp Range** | -55 to +85˚C | |
| | **Storage ambient Temp Range** | -70 to +125˚C | |
| **Weight, typical** | | 2.87Kg(6.3Lb) | |
| **Environmental Seal** | | Exceeds IP67 & IP69K | |
| **Salt Fog** | | MIL-STD-810 | |

## POWER SWITCHING CYCLES

| Make & Break | CYCLES |
|---|---|
| **350A@1,500VDC** | 6,000 |
| **500A @ 1,200VDC** | 3,750[3] |
| **600A @ 1,000VDC** | 3,750[3] |

## FAULT INTERRUPT

| Break Only | Iterations |
|---|---|
| **1,000A/1,500VDC** | 1 |

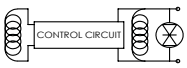
## CONTINUOUS CARRY CURRENT @ 85˚C Ambient

| Current | Conductor |
|---|---|
| **400A**[4] | 400mcm/203mm$^2$ |
| **600A**[4] | 600mcm/304mm$^2$ |
| **800A**[4] | 950mcm/481mm$^2$ |

## SHORT CIRCUIT CURRENT

| Current | Time |
|---|---|
| **8,000A** | 150ms |
| **10,000A** | 100ms |
| **12,000A** | 80ms |

## COIL RATINGS at 25°C

| Coil P/N Designation | B | C | F |
|---|---|---|---|
| **Coil Voltage, Nominal (VDC)** | 12 | 24 | 48 |
| **Coil Type** | Dual | | |
| **Coil Voltage, Max (V)** | 14 | 30 | 64 |
| **Pick-up, Volts, Max (V)** | 8 | 16 | 40 |
| **Coil Current**[5, 6, 7] **(A)** | 0.75 | 0.37 | 0.19 |
| **Coil Power**[5, 6, 7] **(W)** | 9 | | |
| **Internal Coil Suppression** | TVS   | | |
| **Coil Back EMF (V)** | 55 | 55 | 130 |

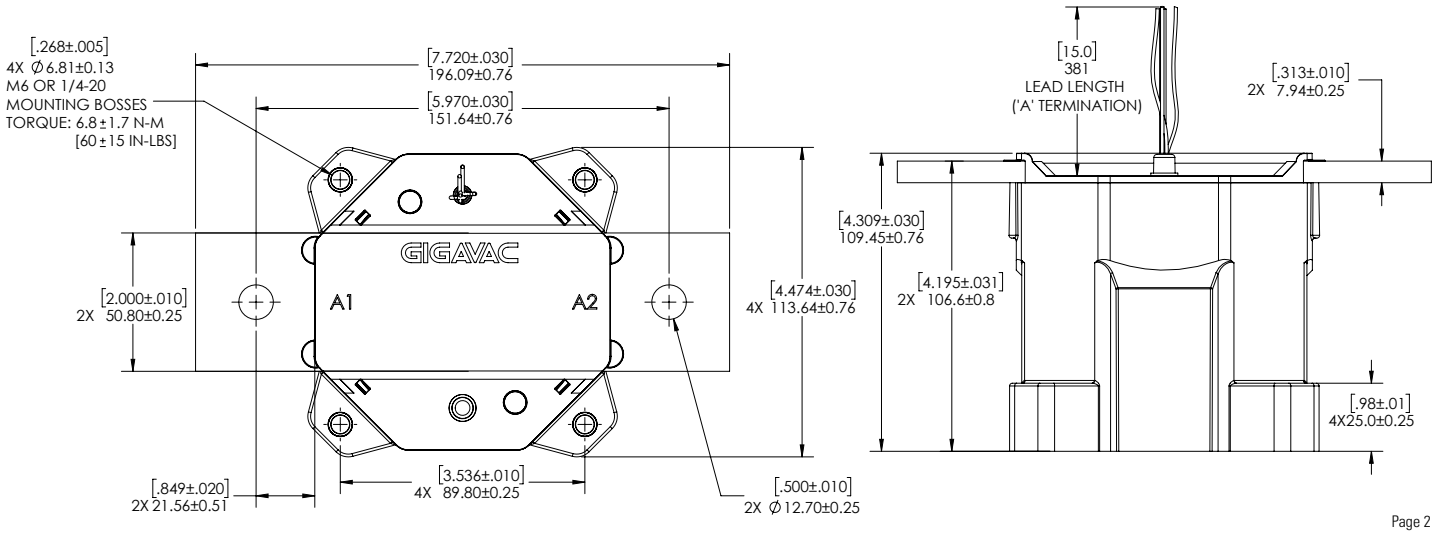
## DIMENSIONS

**Mounting Hardware (customer supplied)**
M6 or 1/4-20
Torque: 6.8 Nm (60 in-lb)

**Power Connections**
Nickel plated copper busbars

**Case Material**
DuPont Zytel FR50
(25% glass filled nylon)

**Coil Wire / Aux Wire**
M22579/43-22, 22AWG



## ORDERING OPTIONS

Example : HX360CAB

**HX360 - C - A - B**

**Family**

**HX360**

**Coil Voltage**

**B:** 12 Vdc, dual coil, internal coil suppression
**C:** 24 Vdc, dual coil, internal coil suppression
**F:** 48 Vdc, dual coil, internal coil suppression

**Coil Termination**

**A:** Flying leads 38 cm (15 in)
**F:** Molex 5-pin Connector 39-01-4050, lead length 28 cm (11 in)

**Auxiliary Contacts**

**B:** SPDT
**X:** None

## GENERAL NOTES

1. Minimum current is 0.1mA, 5V. The auxiliary contact is mechanically linked to the main power contacts.
2. Contact resisitance measured at currents ≥ 200A.
3. Insulation resistance is 50 Mohms after life.
4. Continuous currents assume a 65°C rise on the power terminals. The user must limit terminal temperature to 125°C continuous.
5. The 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.
6. Because the contactor is operated by a coil that changes resistance with temperature, 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 25C and higher than indicated at temperatures below 25C.
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 minimum Pick-up Voltage or Current. Otherwise, the contactor will not pick-up.

## APPLICATION NOTES

- Contactors feature internal transorb for coil suppression.
- For continuous duty coil operation, 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.
- 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.
- Main power contacts (A1, A2) are not polarity sensitive.

## WARNINGS


RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, 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 equipment
- Verify all connections and replace all covers before turning on power

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





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