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InstallationSheet

HDC Series

DC Load Solid State Contactors

The HDC Series Solid State Contactors (SSCs) are designed for control of high power DC loads such as brakes, clutches, coils, electro magnets, heaters, lamps, motors, solenoids, etc., where long life and fast switching are required and traditional mechanical contactors or relays don't provide the required life, performance or service levels. The HDC Series offers the latest in DC Solid State Power control by virtue of Crydom's advanced high speed DC switching circuit for on/off or PWM control (up to 1 KHz) utilizing optically isolated low dissipation FET outputs rated at either 120 or 160 Amps at 48, 72 or 150 VDC Operating Voltage.

FEATURES

- 120 or 160 Amp DC Load Ratings @ 40°C ambient w/heat sink
- Single Pole Single Throw Normally Open operation (SPST/N.O.)
- LED Input Status indicator standard
- UL & cUL pending

MOUNTING INSTRUCTIONS (A)

Please read all installation instructions before using your HDC Series Solid State Contactor (SSC).

- Choose one of the two mounting options and follow the instructions.

Mounting on Heat Sink

- Select adequate heat sink (see thermal derating curves).(B)
- Be sure to use thermal pad or thermal compound between the SSC and the selected heat sink.
- HDC Series Contactor mounting slots have a diameter of 0.2 in (5.0 mm). Four screws are needed (not included) to mount the SSC onto heat sink (See fig. 1). Choose screw length considering the mounting surface and that HDC Series baseplate thickness is 0.125 in (3.2 mm).
- Before applying full torque, tighten down all 4 screws until they contact the baseplate. Then, tighten them to 20 in-lbs (2.2 Nm) starting with one immediately followed by the one in the diagonally opposite corner. After the first 2 screws are completely tightened, proceed tightening the remaining 2 screws.

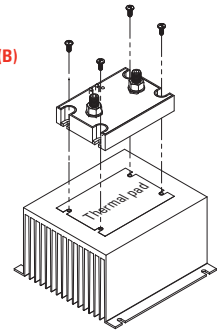


fig. 1 HDC Series SSC mounted on HS053 heat sink (A)

- For optimal thermal performance heat sink fins should be oriented vertically to promote natural airflow.

Mounting on Panel

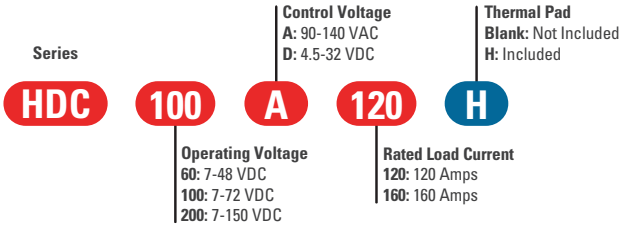
- Locate the panel section on which the HDC Series SSC will be mounted. Panel mount surface must be clean, bare metal and provide adequate heat sinking capability. (B)
- Be sure to use thermal pad or thermal compound between the SSC and the panel.
- HDC Series Contactor mounting slots have a diameter of 0.2 in (5.0 mm). Four screws are needed (not included) to mount the SSC onto panel. Choose screw length considering the mounting surface and that HDC Series baseplate thickness is 0.125 in (3.2 mm).
- Before applying full torque, tighten down all 4 screws until they contact the baseplate. Then, tighten them to 20 in-lbs (2.2 Nm) starting with one immediately followed by the one in the diagonally opposite corner. After the first 2 screws are completely tightened, proceed tightening the remaining 2 screws.

TABLE 1. Accessories

Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Lug Terminal	Thermal Pad
HK1	HS103 / HS103DR	1.0	TRM3/0	HSP-3
	HS053	0.5		HSP-5

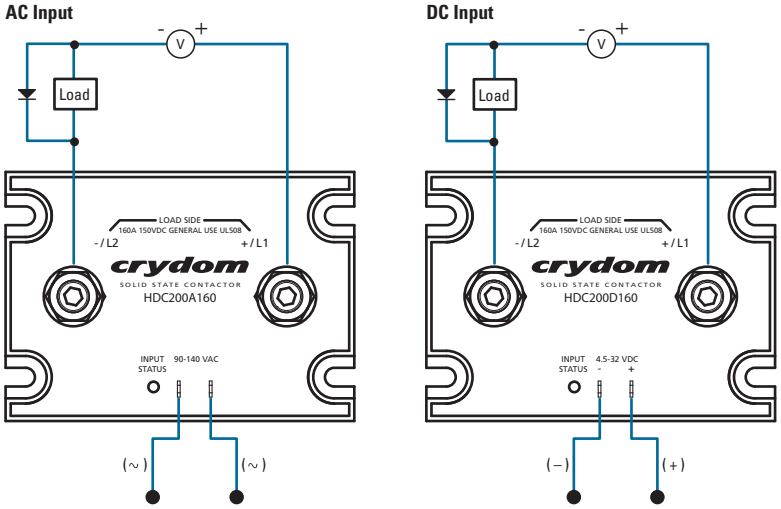
(A) See compatible accessories in TABLE 1.
(B) For maximum ratings use heat sink ratings shown in HDC series derating curves (see product datasheet).
(C) Load can be wired to either terminal 1 or terminal 2. Proper polarity must be observed all the time for the power supply and load.
(D) DC inductive loads must be diode supressed. Diode not included.

PART NUMBER NOMENCLATURE



Required for valid part number
For options only and not required for valid part number

WIRING DIAGRAM (C, D)



Terminals

For maximum ratings, for 120 Amp models use Crydom lug terminal TRM3/0 or other lug terminal with a diameter of 0.375 in (9.52 mm), 1 AWG (42.4 mm²) 75°C insulation wire installing capable.
For maximum ratings, for 160 Amp models use Crydom lug terminal TRM3/0 or other lug terminal with a diameter of 0.375 in (9.52 mm), 2/0 AWG (67.4 mm²) 75°C insulation wire installing capable.

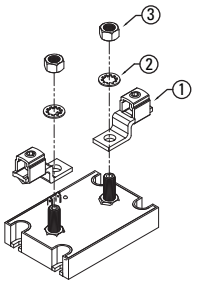


fig. 2 Lug Terminal Connections

Wire Size

Maximum wire size capacity per terminal: Input 12 AWG (3.31 mm2) through Quick Connect Terminals, Output 2/0 AWG (67.4 mm2). Choose wire gauge according to actual load current. See TABLE 2.

Connections

First install Lug Terminal (Item 1 on fig.2) followed by Washer Int. Tooth-Lock (Item 2 on fig.2) and finally Nut Hex (Item 3 on fig.2)

Transient Protection

An inductive load will produce harmful transient voltage when it is turned off. The more perfect the switch, the larger the transient voltage. The MOSFET output is so nearly ideal switch that the transient voltages produced by seemingly "non-inductive" loads can cause damage if not suppressed. Diodes should be fast recovery type with PIV rated greater than twice the supply voltage.

Important Considerations

WARNING! Do not try to unscrew Terminal Studs from Product.
Be sure to use input and output voltages within operating ranges.
LED indicates only input status. It does not represent output status.

TABLE 2

HDC Series Part No.	Output Terminal	Maximum Torque lb in (N m)	Torque lb in (N m)	Wire Size for Max. Ratings AWG (mm²)
HDCxxxx120x	Nut Hex/Washer Int. Tooth-Lock Combo Type 3/8"	300 (33.9)	225 (25.4)	1 (42.4)
HDCxxxx160x				2/0 (67.4)

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⚠ DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / 危险

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.

RIESGO DE DESCARGA ELECTRICA O EXPLOSION.

- Desconectar todos los suministros de energia a este equipo antes de trabajar con este equipo.
- Verificar todas las conexiones y colocar todas las tapas antes de energizer el equipo.

El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.

RISQUE DE DESCHARGE ELECTRIQUE OU EXPLOSION

- Eteindre toutes les sources d'énergie de cet appareil avant de travailler dessus de cet appareil
- Vérifier tous connections, et remettre tous couverts en olace avant de mettre sous

De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses sérieuses.

GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.

- Stellen Sie jeglichen Strom ab, der dieses Gerät versorgt, bevor Sie an dem Gerät Arbeiten durchführen
- Vor dem Drehen auf Energie alle Anschlüsse überprüfen und alle Abdeckungen ersetzen.

Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.

RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSI ONE.

- Spenga tutta l'alimentazion e che fornisce questa apparecchiatu ra prima del lavorare a questa apparecchiatu ra
- Verificare tutti i collegamenti e sostituire tutte le coperture prima della rotazione sull'alimentazi one

L'omissione di seguire queste istruz ioni provocherà la morte o di lesioni serie

存在电击、爆炸或电弧闪烁危险

- 在操作此设备之前请先关闭电源。

若不遵守这些说明，可能会导致严重的人身伤害甚至死亡。

⚠ WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / 警告

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.

RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER

- Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher.
- Respecter les consignes de montage, et notamment les couples de serrage.
- Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit.

Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.

GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG

- Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren.
- Beachten Sie die Montageanweisungen,
- Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein.

Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.

RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD

- Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo.
- Respetar las instrucciones de montaje, y en particular los pares de apretado.
- No dejar que penetren líquidos o cuerpos extraños en el producto.

Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.

RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO

- I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo.
- Seguire le istruzioni di montaggio corrette.
- Non far entrare liquidi o oggetti estranei in questo apparecchio.

La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.

材料损坏和高温外壳的危险性

- 产品的一侧面板可能很热，在其冷却前请不要触碰。
- 遵照正确的安装说明，包括扭矩值。
- 请勿让液体及其他异物进入本产品。

如不能正确执行这些操作说明，极有可能造成严重人体伤害或者设备的损坏。

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