

crydom[®]

HDC Series



The Global Expert in **Solid State Switching** Technology

A brand of
CST
CUSTOM SENSORS & TECHNOLOGIES

ABOUT US

Crydom, a brand of Custom Sensors & Technologies (CST) and **global expert in Solid State Relay Technology**, has a distinguished record of providing high quality, world class Solid State Relay and Control Products for a variety of heating, lighting and motion control applications. Crydom products, coupled with **unparalleled technical support, timely delivery and competitive pricing**, provide Crydom's clients with the innovative products and support necessary to succeed in today's competitive and fast paced global markets.

Crydom's extensive selection of standard off-the-shelf products is constantly being updated and expanded through its continuous improvement and aggressive new product development programs. Utilizing state of the art designs, materials and technology, Crydom offers a wide range of AC and DC output SSRs and solid state contactors in industry standard Panel Mount, PCB Mount, DIN Rail and Plug-In packages, all **meeting global safety and standards agency requirements** such as CE, RoHS, UL, IEC, etc.

Bolstered by four decades of Solid State Relay operations experience, Crydom also specializes and encourages **adapted and fully custom-designed SSR products** for nearly any application where unique specifications and optimized performance are critical for success.

Crydom's modern purpose-built **100,000 square foot manufacturing facility** houses all aspects of its ISO certified operation including Design and Development Engineering, Manufacturing Operations and Quality Assurance, Customer Service, Finance, Marketing and General Management, permitting close coordination of all aspects of Crydom's activities. Applications Engineering and Sales support are both performed in the field to provide Crydom's Customers with the unparalleled technical and commercial support.

Following rigid design guidelines and standards, Crydom products have set the bench mark for SSR performance and reliability world wide. In addition to **award winning designs**, Crydom has acquired an impressive list of **patents** related to SSRs and Solid State Controls, while continuing to develop new circuit and technology-related inventions as part of **extensive R&D programs**.

To learn more about Crydom SSR technology and products, or how an alliance with Crydom can contribute to the success of your project, visit **www.crydom.com** or contact your authorized Crydom Distributor or Crydom Customer Service Representative today.

HDC SERIES SOLID STATE CONTACTORS Panel Mounted DC Solid State Contactors

The **HDC Series** of DC 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. used in applications like automotive and battery driven accessories, marine applications, packaging machinery, portable lifts, power supplies, process controls, recreational vehicles and accessories, solar arrays, 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.

DC Load control with available Logic compatible DC or AC Control signals

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. The **HDC Series** features 2.5 KV optical isolation, LED input status indicator and is available with either logic compatible 4.5 to 32 VDC or 90 to 140 VAC input control.

Packaging, Approvals & Certifications

The **HDC Series** is housed in a robust compact encapsulated industry standard 75 x 105 mm panel mount package well suited for harsh environments and features large 0.375" [9.52 mm] studs for power termination, Quick-Connect terminals for input control and a heavy duty aluminum base plate for superior thermal performance and easy mounting to a heat sink, panel or backplane.

The **HDC Series** is CE Certified to both the Low Voltage and EMC Directives and RoHS and China RoHS compliant.

For additional information about the **HDC Series** of DC output Solid State Contactors, supporting thermal management and interconnect accessories available from Crydom, contact the nearest Crydom Distributor, Representative or local Crydom Sales Office, or visit our website at www.crydom.com.



HDC Series

HDC Series DC Load Solid State Contactors

120-160 Amp

- 120 or 160 Amp DC Load Ratings @ 40°C ambient w/heat sink
- 48, 72 or 150 VDC Operational Voltage Ratings
- Single Pole Single Throw Normally Open Operation (SPST/N.O.)
- 4.5 to 32 VDC or 90 to 140 VAC Control Voltage ratings
- LED Input Status indicator standard
- UL & cUL pending

Output Specifications (A)	HDC60x120	HDC100x120	HDC200x120	HDC60x160	HDC100x160	HDC200x160
Blocking Voltage [VDC]	60	100	200	60	100	200
Operating Voltage [VDC]	7 - 48	7 - 72	7 - 150	7 - 48	7 - 72	7 - 150
Rated Load Current [A] (B)	120	120	120	160	160	160
Minimum Load Current [mA]	2.5	2.5	2.5	2.5	2.5	2.5
Maximum Surge Current (10 msec) [ADC]	360	360	1200	470	470	1600
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.53	0.53	0.72	0.56	0.56	0.70
Maximum On-State Resistance (R _{DS-ON}) [mOhm]	4.32	4.32	6.0	3.5	3.5	4.0
Maximum Off-State Leakage Current @ Rated Voltage [mA]	< 0.1	< 0.15	< 0.2	< 0.15	< 0.15	< 0.2
Thermal Resistance Junction to Case (R _{JA}) [°C/W]	0.42	0.42	0.25	0.36	0.36	0.23

Input Specifications (A)	HDCxxxAxxx	HDCxxxDxxx
Control Voltage Range	90 - 140 VAC	4.5 - 32 VDC
Minimum Turn-On Voltage	90 VAC	4.5 VDC
Must Turn-Off Voltage	35 VAC	4.2 VDC
Minimum Input Current (for On-State)	31 mA @ 90 VAC	23 mA @ 4.5 VDC
Maximum Input Current	33 mA @ 140 VAC	45 mA @ 32 VDC
Nominal Input Impedance	Input is Current Regulated	
Maximum Turn-On Time (t _{od} + t _{os}) @ Maximum Vin (C)	4.0 msec (@ 140 VAC)	12 µsec (@ 32 VDC)
Maximum Turn-On Time (t _{od} + t _{os}) @ Minimum Vin (C)	6.0 msec (@ 90 VAC)	92 µsec (@ 4.5 VDC)
Maximum Turn-Off Time (t _{fd} + t _{fs}) @ Maximum Vin (C)	9.2 msec (@ 140 VAC)	405 µsec (@ 32 VDC)
Maximum Turn-Off Time (t _{fd} + t _{fs}) @ Minimum Vin (C)	9.2 msec (@ 90 VAC)	195 µsec (@ 4.5 VDC)

General Specifications (A)	HDCxxxxxx
Dielectric Strength, Input-Output to Baseplate (50/60Hz) [Vrms]	2500
Minimum Insulation Resistance (@ 500 VDC)	10 ⁹
Maximum Capacitance, Input to Output [pF]	10
Ambient Operating Temperature Range [°C]	-30 to 80
Ambient Storage Temperature Range [°C]	-40 to 125
IP ratings	IP00
Status Indicator Display	Green (On)
Weight (typical) [oz] (gr)	13.12 (371.95)
Encapsulation	Thermally Conductive Epoxy
Housing Material	PBT 30% GF, UL94 V-0
Output Terminals	Stud / 0.375" (9.52 mm) -24
Input Terminals	Quick Connect / 0.187" x 0.032" (4.75 x 0.81 mm)
Humidity	85% Non-Condensing

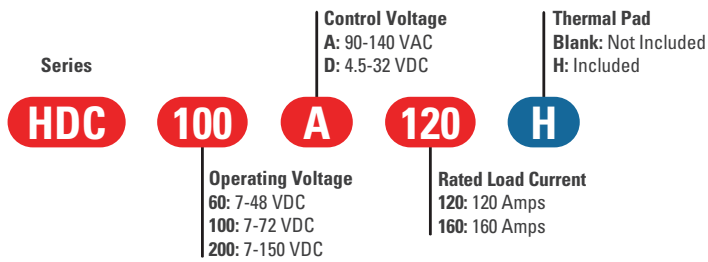
General Notes

- (A) All parameters at 40°C unless otherwise specified.
 (B) For maximum ratings use heat sink ratings in TABLE 2.
 (C) See Switching Time Diagram. V_{OUT} is typical of a resistive load.



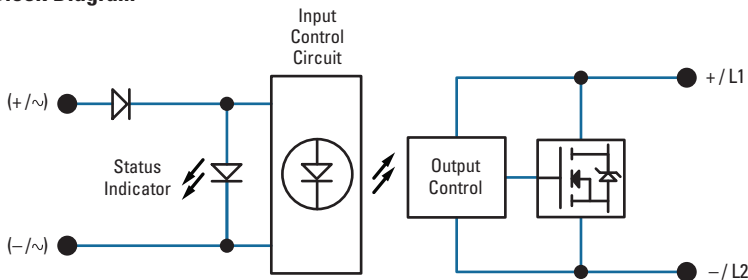
To view available Installation Sheet scan the QR code with your smartphone or visit www.crydom.com

Part Number Nomenclature



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

Block Diagram



Mechanical Dimensions

Tolerances: ± 0.02 in / 0.5 mm
All dimensions are in: inches [millimeters]

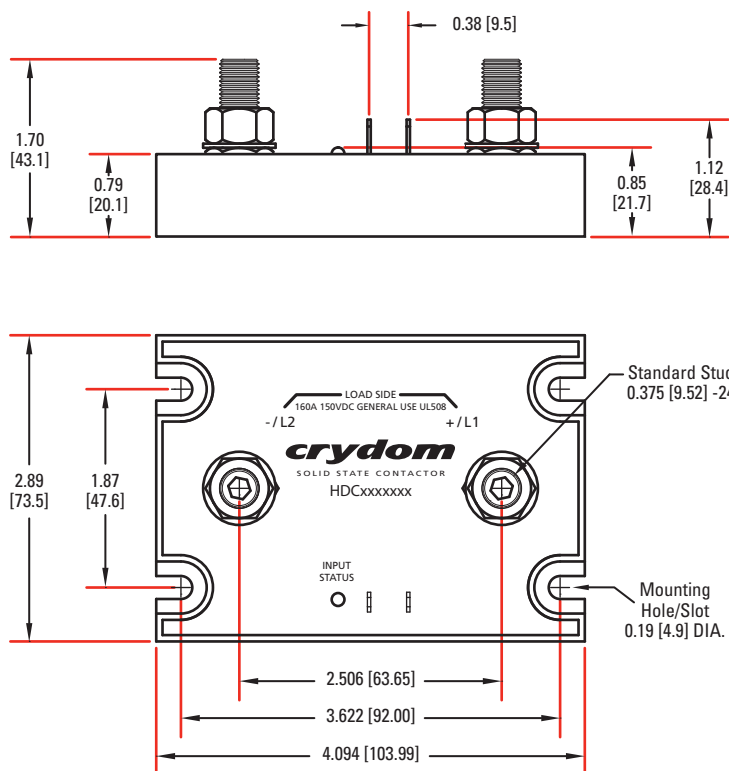
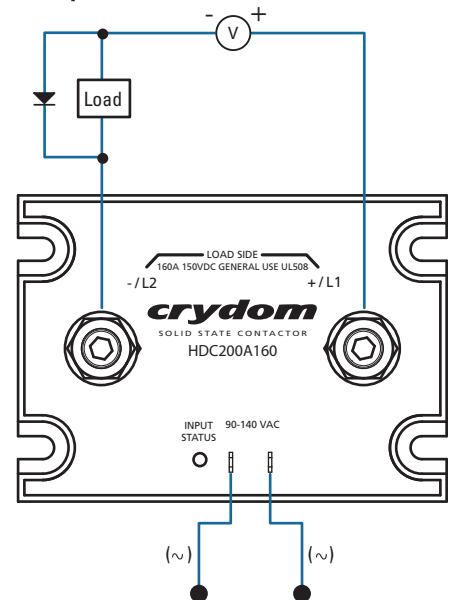


TABLE 1. Accessories

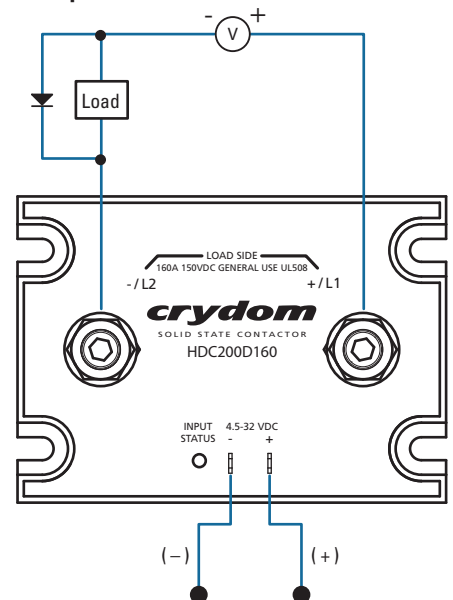
Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Lug Terminal	Thermal Pad
HK1	HS103 / HS103DR HS053	1.0 0.5	TRM3/0	HSP-3 HSP-5

Wiring Diagram (D, E)

AC Input



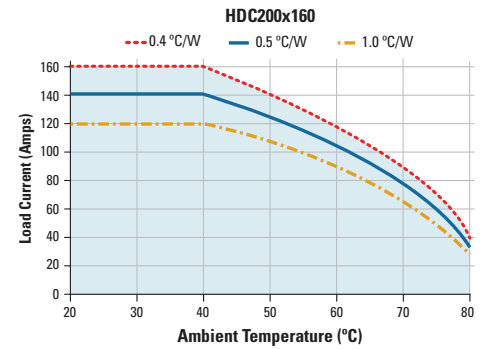
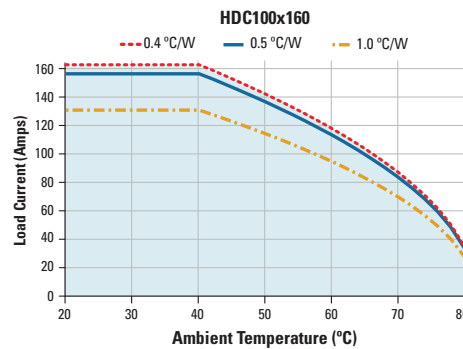
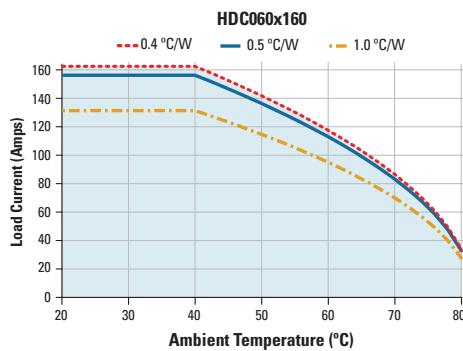
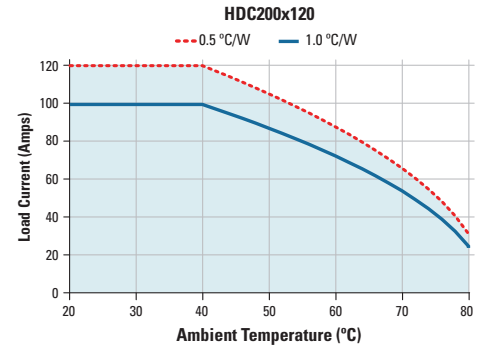
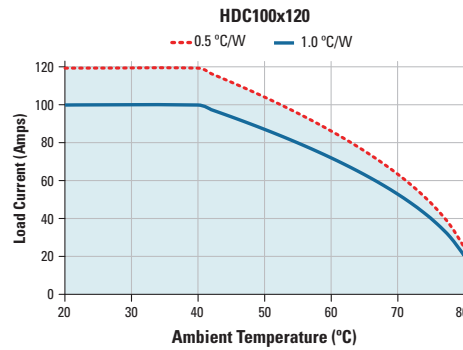
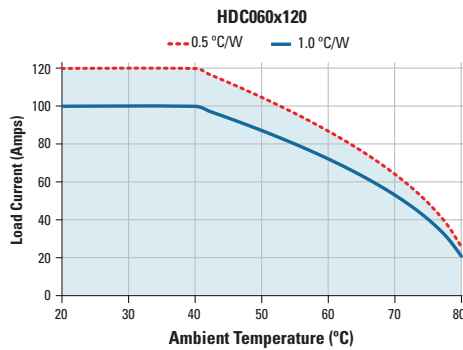
DC Input



(D) Inductive loads must be diode suppressed as indicated.

(E) 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 with terminal 2 being positive with respect to terminal 1.

Derating Curves



Switching Time Diagram

Turn-On Time Maximum = $t_{od} + t_{os}$
Turn-Off Time Maximum = $t_{fd} + t_{fs}$

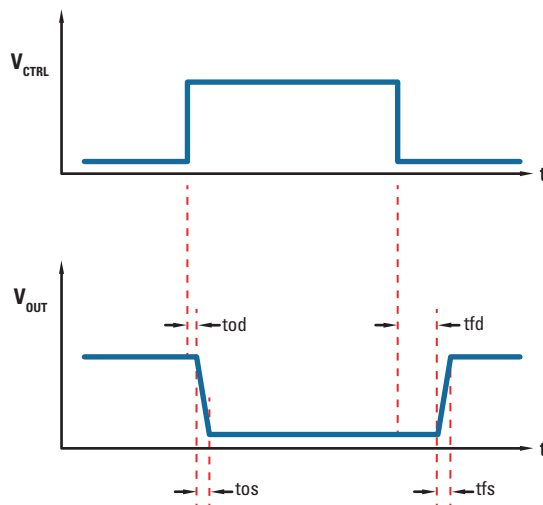


TABLE 2: Recommended Crydom Heat Sinks

HDC Series Part No.	Required Heat Sink [°C/W]	Crydom Heat Sink Part No.
HDCxxxxxxx	1.0	HS103 / HS103DR
HDCxxxxxxx	0.5	HS053
HDC200x160	0.4	N/A

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