

HDC SERIES

PANEL MOUNT DC SOLID STATE CONTACTORS



Features

- Ratings of 120 A and 160 A @ 48, 72 & 150 VDC
- LED Status Indicator
- Heavy Duty Stud Terminals
- AC or DC control
- Micro Seconds Turn-On and Off times
- Low On-State Voltage Drop
- PWM up to 1 kHz for DC input models

PRODUCT SELECTION

Control Voltage	120 A	160 A
4.5-32 VDC	HDC60D120, HDC100D120, HDC200D120	HDC60D160, HDC100D160, HDC200D160
90-140 VAC	HDC60A120, HDC100A120, HDC200A120	HDC60A160, HDC100A160, HDC200A160

SPECIFICATIONS

Output ⁽¹⁾

Description	HDC60x120	HDC60x160	HDC100x120	HDC100x160	HDC200x120	HDC200x160
Operating Voltage [Vdc]	7-48	7-48	7-72	7-72	7-150	7-150
Blocking Voltage [Vdc]	60	60	100	100	200	200
Rated Load Current [A] ⁽²⁾	120	160	120	160	120	160
Rated Load Current {UL 508 Motor Controller} [FLA]					17 FLA / 2 HP	25 FLA / 3 HP
Rated Load Current {IEC 60947-4-1 DC-1} [Adc] ^{(4) (5)}	120 (≤48 VDC)	160 (≤48 VDC)	120 (≤72 VDC)	160 (≤72 VDC)	120 (≤150 VDC)	160 (≤150 VDC)
Rated Load Current {IEC 60947-4-1 DC-3} [FLA] ^{(4) (5)}	17 (≤48 VDC)	25 (≤48 VDC)	17 (≤72 VDC)	25 (≤72 VDC)	17 (≤150 VDC)	25 (≤150 VDC)
Minimum Load Current [mA]	2.5	2.5	2.5	2.5	2.5	2.5
Maximum Surge Current (10ms) [Adc]	360	470	360	470	1200	1600
Maximum Off-State Leakage Current @ Rated Voltage [mA]	0.1	0.1	0.15	0.15	0.2	0.2
Maximum On-State Voltage Drop @ Rated Current [VDC]	0.53	0.56	0.52	0.56	0.72	0.64
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.42	0.36	0.42	0.36	0.25	0.23
Maximum On-State Resistance @ Rated Current (RDS-ON) [mOhms]	4.32	3.5	4.32	3.5	6.0	4.0
Wire Size max (solid/stranded) [AWG/ IEC mm ²]	2/0 / 67.4	2/0 / 67.4	2/0 / 67.4	2/0 / 67.4	2/0 / 67.4	2/0 / 67.4

Output Terminal Nut Torque Range [lb-in (Nm)]	225-300 (25.4-33.9)	225-300 (25.4-33.9)	225-300 (25.4-33.9)	225-300 (25.4-33.9)	225-300 (25.4-33.9)	225-300 (25.4-33.9)
Maximum PWM (Hz) ⁽³⁾	1000	1000	1000	1000	1000	1000

Input ⁽¹⁾

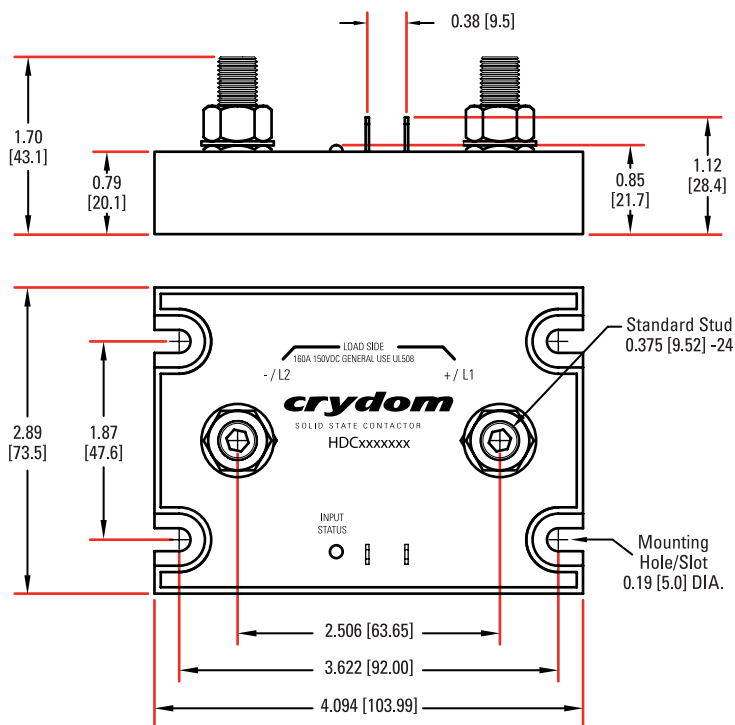
Description	HDC60D & HDC100D	HDC60A & HDC100A	HDC200D	HDC200A
Control Voltage Range	4.5-32 VDC	90-140 VAC	4.5-32 VDC	90-140 VAC
Must Turn-Off Voltage	4.2 VDC	35 VAC	4.2 VDC	35 VAC
Minimum Input Current @ Minimum Voltage (for on-state)	23 mA	31 mA	23 mA	31 mA
Maximum Input Current @ Maximum Voltage	45 mA	33 mA	45 mA	33 mA
Nominal Input Impedance	Current Regulated	Current Regulated	Current Regulated	Current Regulated
Maximum Turn-On Time at min voltage	90.5 µs	6 ms	92 µs	6 ms
Maximum Turn-On Time at max voltage	8.5 µs	4 ms	12.0 µs	4 ms
Maximum Turn-Off Time at min voltage	145 µs	9.2 ms	195 µs	9.2 ms
Maximum Turn-Off Time at max voltage	330 µs	9.2 ms	405 µs	9.2 ms
Terminal Type / size in (mm)	QC / 0.187 (4.75)	QC / 0.187 (4.75)	QC / 0.187 (4.75)	QC / 0.187 (4.75)

General ⁽¹⁾

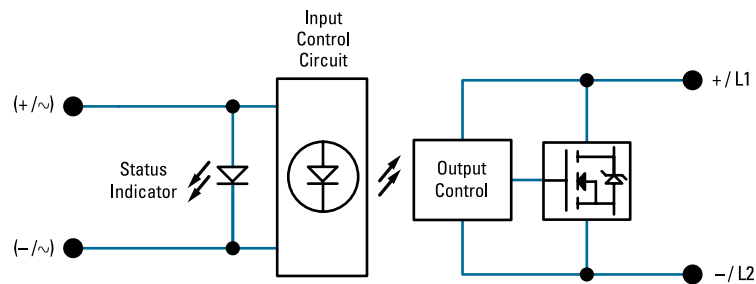
Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	2500 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 ⁹ Ohm
Maximum Capacitance, Input/Output	10 pF
Ambient Operating Temperature Range ⁽⁶⁾	-30 to 80°C
Ambient Storage Temperature Range	-40 to 125 °C
Maximum Humidity	85% non-condensing
Weight (typical) lb/g	0.75/340.2
Housing Material	PBT 30% GF, UL 94 V-0
SSR Mounting Torque Range [lb-in/Nm]	18-20 (2-2.2)
Baseplate Material	Aluminum
Encapsulation	Thermal Conductive Epoxy
LED Input Status Indicator	Green

MECHANICAL SPECIFICATIONS

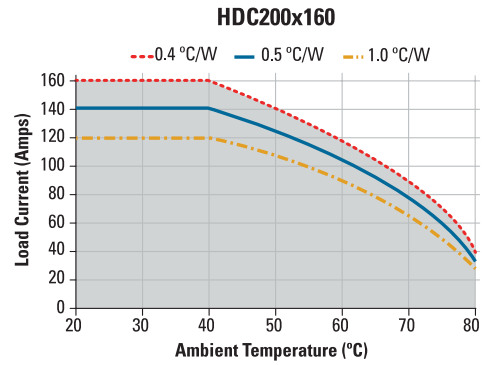
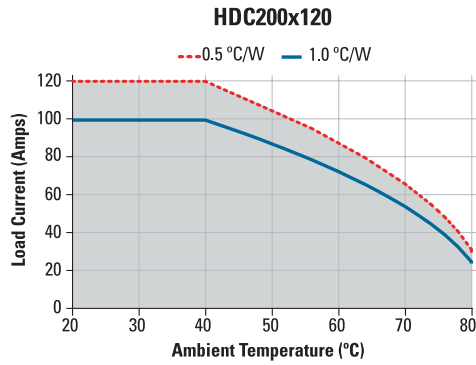
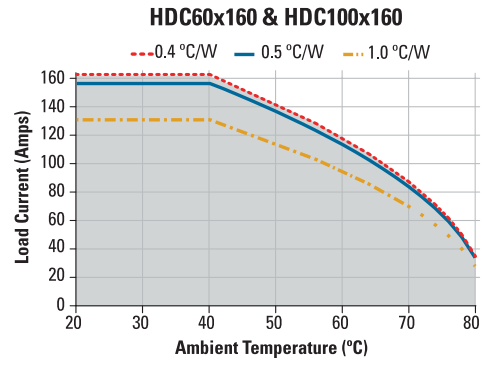
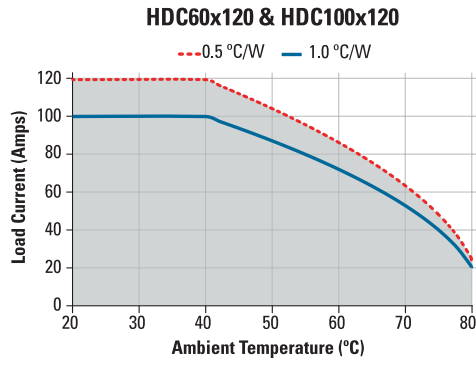
Tolerance: ±0.02 in / 0.5 mm
 All dimensions are in: inches [millimeters]



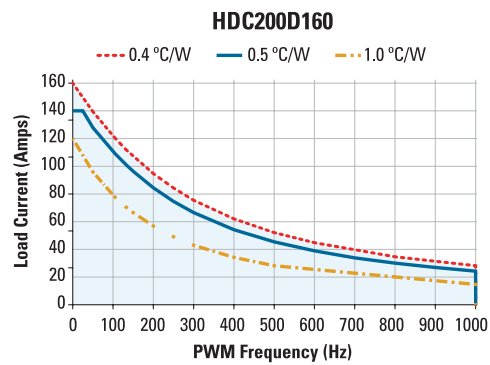
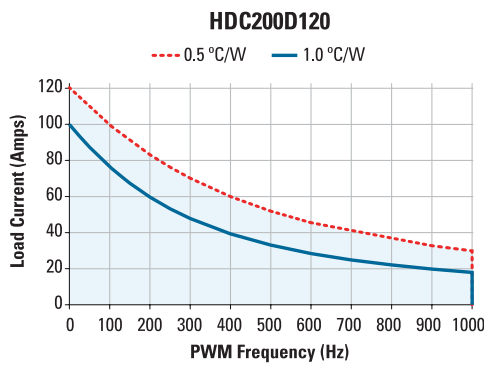
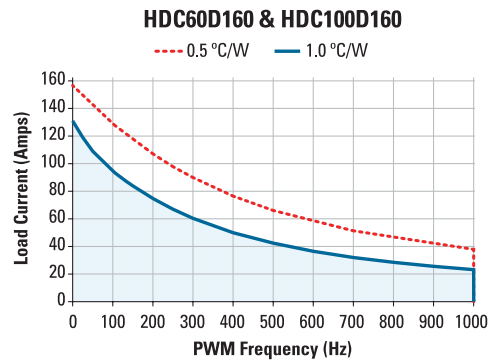
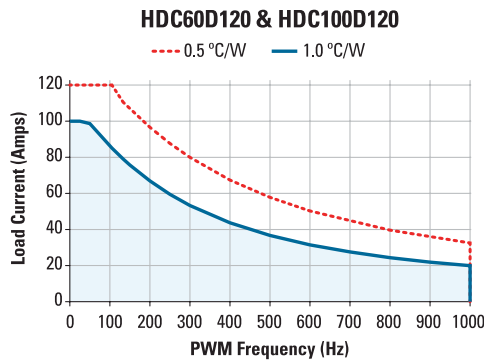
WIRING DIAGRAM



THERMAL DERATE INFORMATION



PWM DERATE INFORMATION



ACCESSORIES

Recommended 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

ORDERING OPTIONS

Example : HDC100A120H

	HDC	100	A	120	H
Series					
HDC					
Operating Voltage					
60 : 7-48 VDC					
100 : 7-72 VDC					
200 : 7-150 VDC					
Control Voltage					
A : 90-140 VAC					
D : 4.5-32 VDC					
Rated Load Current					
120 : 120 Amps					
160 : 160 Amps					
Thermal Pad					
Blank : Not Included					
H : Included					

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

GENERAL NOTES

- (1) All parameters at 25°C unless otherwise specified
- (2) Heat sinking required, see derating curves
- (3) See PWM Derating Chart for DC Input Models Only
- (4) In order to achieve indicated ratings, on HDC60xxx and HDC100xxx series, it is required to connect four varistors in parallel to the output with the following specifications:
 Varistor Voltage: 82 V
 Energy (2ms): >40 J
- (5) In order to achieve indicated ratings, on HDC200xxx series, it is required to connect two varistors in parallel to the output with the following specifications:
 Varistor Voltage: 200 V
 Energy (2ms): >100 J
- (6) At 80°C operating temperature, the maximum input voltage for DC versions is 12 VDC

AGENCY APPROVALS & CERTIFICATIONS



E116949



Designed in accordance with the requirements of IEC 62314

IEC 61000-4-2 : Electrostatic Discharge – Level 3 (Criteria A)

IEC 61000-4-4 : Electrically Fast Transients – Level 3 (Criteria A)

IEC 61000-4-5 : Electrical Surges – Level 3 (Criteria A)

IEC 60068-2-6 : Vibration 0.33mm and 0.75 mm Amplitude over 10-500 Hz

IEC 60068-2-27 : Shock Resistance 50g/11ms

IEC60947-4-1 : Contactors and Motor-Starters (DC-1,DC-3)

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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