Quert

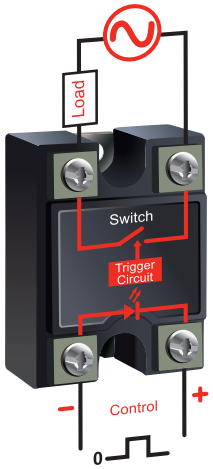
crydom®

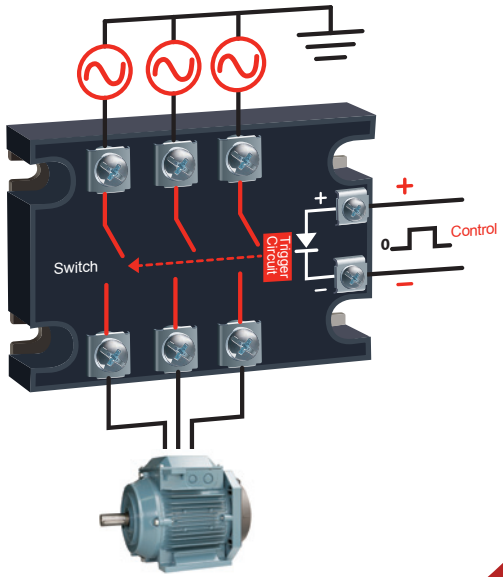
Solid State Relays & Contactors

The Global Expert in Solid State Switching Technology

What is a Solid State Relay/Contactor?

A Solid State Relay or Contactor (SSR or SSC) is an electronic component that switches Power (AC or DC current) to a load circuit and provides electrical isolation between an application's control circuit and load circuit. It is a competitive technology to Electromechanical Relays (EMRs) and other switching technologies such as Mercury Displacement Relays (MDRs) and discrete component assemblies.





Applications

Although there are literally thousands of individual uses for Solid State Relays and Contactors, most can be categorized into the following applications:

Motion Control

Includes elevators, lifts, hoists, exercise equipment, conveyor systems, solar trackers, fans, solenoid and valve control.

Benefits: Endurance, shock & vibration resistance, Soft Start, reversing, no arcing, fast switching, long life, no maintenance, easy to interface, reduced parts count.

Heating Control

This encompasses the largest segment of solid state relay users. Applications include, but are not limited to: professional food equipment, plastic molding/extrusion machinery, HVAC&R and soldering equipment.

Benefits: Long life, no maintenance, safe product, easy to interface, as well as enabling temperature accuracy. Suitable for heater, fan, blower and valve control.

Power Control

Includes power supplies, transformers, regulators, inverters, converters, UPS systems, etc. as well as any load that is not specifically for heating, lighting or motion control.

Benefits: Long life, silent operation, high speed switching, endurance, mechanical shock and vibration resistance, position insensitive, logic compatibility, arc and bounce free switching, and low electromagnetic emissions.

Lighting Control

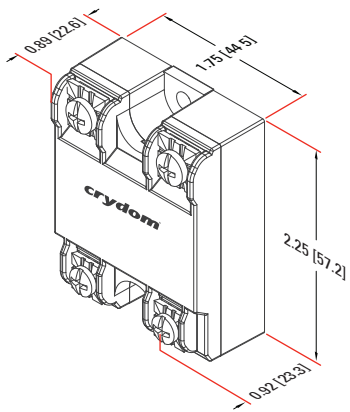
These applications are usually broken down into three categories: theatrical, warehouse and commercial. Many of the products used in this segment are custom designed.

Benefits: Dimming, silent operation, fast switching, long life, no maintenance, safe product, easy to interface, reduced parts count.

Series 1 • 10-125 Amps

- Crydom's Signature family of Solid State Relays
- Ratings from 10 to 125 Amps @ 24-280 VAC and from 25 to 90 Amps @ 80-530 VAC
- Back-to-back SCR output provides added reliability in commercial and heavy industrial applications
- Flexible 3-32 VDC, 18-36 VAC or 90-280 VAC Control Voltage
- Elective "ultra-low" input current draw (2-4 mAmps DC typical, "T" suffix option)
- Optional output R-C Snubber for additional dv/dt attenuation
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase control or inductive loads) output
- Elective Internal TVS ("P" suffix) eliminates the need for external Overvoltage Protection
- A pre-attached Thermal Pad can be ordered to eliminate the need for thermal compound using the "H" suffix
- Optional Normally Closed output ("-B" suffix option)
- UL 508 overload endurance rated and 100 kA Short Circuit Current Rating (SCCR)

Notes: A B C D J K



4 — **Output Frecuency**
Blank: 47-440 Hz
4: 400 Hz
(12 & 24 suffixes only)

A — **Control Voltage**
A: 90-280 VAC
D: 3-32 VDC (4-32 VDC for 48 suffix)
AxxxxE: 18-36 VAC (12 & 24 suffixes only)

12 — **Operating Voltage**
12: 24-140 VAC
24: 24-280 VAC
48: 48-530 VAC

10 — **Rated Load Current**
10: 10 Amp
(12 & 24 suffixes only)
25: 25 Amp
40: 40 Amp (12 suffix only)
50: 50 Amp
(24 & 48 suffixes only)
75: 75 Amp
(24 & 48 suffixes only)
90: 90 Amp (24 & 48 suffixes only)
110: 110 Amp (24 suffix only)
125: 125 Amp (24 suffix only)

E — **Termination**
Blank: Screw
F: Quick Connect
(Single pair
[up to 25 Amp]
Double pair [50 Amp])
K: Installed standoffs for
PC Board mounting

K — **Overvoltage Protection**
(12 & 24 suffixes only)
Blank: Not Included
P: Included

P — **Input Status LED**
(12 & 24 suffixes only)
Blank: Not Included
G: Included

G — **Snubber**
Blank: Not Included
S: Included
(Not needed with T suffix,
included as standard)

S — **Thermal Pad**
Blank: Not Included
H: Included

H — **Blank:** Phototriac
T: Low Current
Phototransistor
(Not needed with
-B suffix, included
as standard)

T — **Switching Type**
Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On

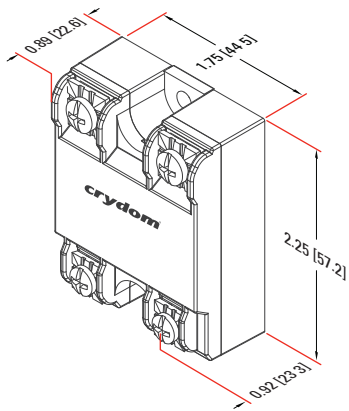
-10 — **Output Type**
Blank: Normally Open
-B: Normally Closed
(12 & 24 suffixes only.
Snubber included,
not available with -10 option)

-B

HA/HD Series • 12-125 Amps

- Solid State Relay with ratings from 12 to 125 Amps @ 48-660 VAC
- Back-to-back SCR output provides added reliability in commercial and heavy industrial applications
- Flexible 4-32 VDC, 18-36 VAC or 90-280 VAC Control Voltage
- Elective "ultra-low" input current draw (2-4 mAmps DC typical, "T" suffix option)
- R-C Snubber network for additional dv/dt attenuation (for HA48/HD48 models only)
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase control or inductive loads) output
- Elective Internal TVS ("P" suffix) eliminates the need for external Overvoltage Protection
- A pre-attached Thermal Pad can be ordered to eliminate the need for thermal compound using the "H" suffix
- UL 508 overload endurance rated and 100 kA Short Circuit Current Rating (SCCR)

Notes: A B C D J K



Series

Control Voltage
A: 90-280 VAC
D: 4-32 VDC
AxxxxE: 18-36 VAC

Overvoltage Protection
Blank: Not Included
P: Included

Snubber
Blank: Not Included
S: Included
(Hx48xx and Hx48xxT only
Not needed with T suffix,
included as standard)

Trigger Circuit
Blank: Phototriac
T: Low Current
Phototransistor

H	A	48	25	E	K	P	G	S	H	T	-10

Operating Voltage
48: 48-530 VAC
60: 48-660 VAC

Rated Load Current
12: 12 Amp (48 suffix only)
25: 25 Amp
50: 50 Amp
75: 75 Amp (48 suffix only)
90: 90 Amp
110: 110 Amp (48 suffix only)
125: 125 Amp

Termination
Blank: Screw
F: Quick Connect
(Single pair [up to 25 Amp])
Double pair [50 Amp])
K: Installed standoffs for
PC Board mounting

Input Status LED
Blank: Not Included
G: Included

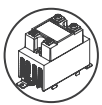
Thermal Pad
Blank: Not Included
H: Included

Switching Type
Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On

Series H1 • 25-125 Amps

- Solid State Relay with ratings from 25 to 125 Amps @ 48-690 VAC
- Back-to-back SCR output provides added reliability in commercial and heavy industrial applications
- Flexible 4-32 VDC Control Voltage
- Low output off-state leakage current (2WD & 6WD suffixes only, snubberless)
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase control or inductive loads) output
- Elective Internal TVS ("P" suffix) eliminates the need for external Overvoltage Protection (2D & 2WD suffixes only)
- A pre-attached Thermal Pad can be ordered to eliminate the need for thermal compound using the "H" suffix
- UL 508 overload endurance rated and 100 kA Short Circuit Current Rating (SCCR)

Notes: A B C D J K



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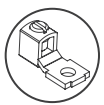

Compatible Accessories
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Series

H1

Transient Overvoltage
2D: 1200 Vpk (with Snubber)
2WD: 1200 Vpk (without Snubber)
6WD: 1600 Vpk (without Snubber)

2WD

Operating Voltage
48: 48-530 VAC (2D suffix only)
48-660 VAC (2WD suffix only)
60: 48-690 VAC (6WD suffix only)

48

Rated Load Current
25: 25 Amp
50: 50 Amp
75: 75 Amp
90: 90 Amp
125: 125 Amp
(2D & 2WD suffixes only)

25

Termination
Blank: Screw
F: Quick Connect
(Single pair [25 Amp]
Double pair [50 Amp])
K: Installed standoffs for PC Board mounting

K

Overvoltage Protection
(2D & 2WD suffixes only)
Blank: Not Included
P: Included

P

Input Status LED
Blank: Not Included
G: Included

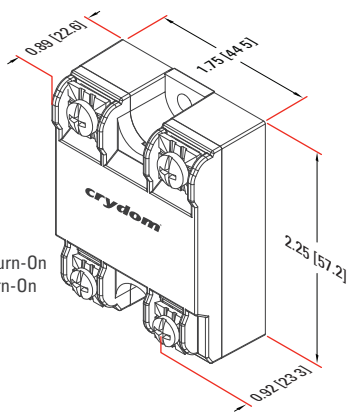
G

Thermal Pad
Blank: Not Included
H: Included

H

Switching Type
Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On

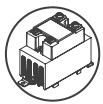
-10



CW Series • 10-125 Amps

- Heavy duty Solid State Relay with ratings from 10 to 125 Amps @ 24-280 VAC or 48-660 VAC
- Back-to-back SCR output provides added reliability in commercial and heavy industrial applications
- EMC compliant (LEVEL 3) for reliable operation in harsh electrical environments
- Flexible 3-32 VDC, 18-36 VAC or 90-280 VAC Control Voltage and universal AC/DC control of 20-280 VAC and 20-48 VDC
- LED indicator for easy identification of control status
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase control or inductive loads) output
- IP20 "touch safe" Cover provides additional user protection
- Elective Internal TVS ("P" suffix) eliminates the need for external Overvoltage Protection
- A pre-attached Thermal Pad can be ordered to eliminate the need for thermal compound using the "H" suffix
- UL 508 overload endurance rated and 100 kA Short Circuit Current Rating (SCCR)

Notes: A B C D J K



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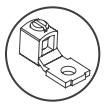

Compatible Accessories
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Series

CW **U** **48** **50** **E** **P** **H** **-10**

Control Voltage
A: 90-280 VAC
D: 3-32 VDC (4-32 VDC for 48 suffix)
U: 20-48 VDC or 20-280 VAC
AxxxxE: 18-36 VAC

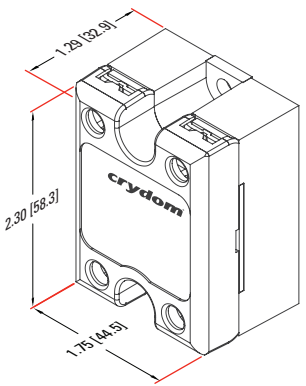
Operating Voltage
24: 24-280 VAC
48: 48-660 VAC

Rated Load Current
10: 10 Amps
25: 25 Amps
50: 50 Amps
90: 90 Amps
125: 125 Amps

Thermal Pad
Blank: Not Included
H: Included

Overvoltage Protection
Blank: Not Included
P: Included

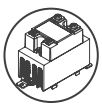
Switching Type
Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On



CSW Series • 10-90 Amps

- Heavy duty Solid State Relay with ratings from 10 to 90 Amps @ 24-280 VAC
- Back-to-back SCR output provides added reliability in commercial and heavy industrial applications
- EMC compliant (LEVEL 3) for reliable operation in harsh electrical environments
- Flexible 3-32 VDC Control Voltage
- Low output off-state leakage current (without option "S")
- Elective R-C Snubber network for additional dv/dt attenuation (option "S")
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase-control or inductive loads) output
- Elective Internal TVS ("P" suffix) eliminates the need for external Overvoltage Protection
- A pre-attached Thermal Pad can be ordered to eliminate the need for thermal compound using the "H" suffix
- UL 508 overload endurance rated and 100 kA Short Circuit Current Rating (SCCR)

Notes: A B C D J K



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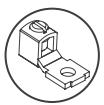

Compatible Accessories
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Series
CSW

Operating Voltage
24: 24-280 VAC

Rated Load Current
10: 10 Amp
25: 25 Amp
50: 50 Amp
75: 75 Amp
90: 90 Amp

Termination
Blank: Screw
F: Quick Connect
(Single pair [up to 25 Amp]
Double pair [50 Amp])
K: Installed standoffs for PC Board mounting

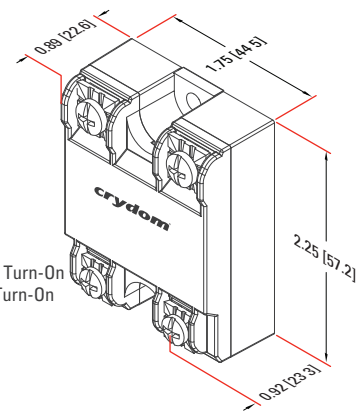
Overvoltage Protection
Blank: Not Included
P: Included

Input Status LED
Blank: Not Included
G: Included

Snubber
Blank: Not Included
S: Included

Thermal Pad
Blank: Not Included
H: Included

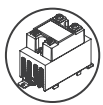
Switching Type
Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On



CL Series • 5-10 Amps

- Economical Solid State Relay with ratings of 5 or 10 Amps @ 24-280 VAC
- Optional IP20 "touch safe" Cover for additional user protection
- Economical Triac based construction
- LED indicator for easy identification of control status
- Regulated AC or DC Control Voltage
- Available with Zero Voltage Turn-On (resistive loads) or Instantaneous Turn-On (phase control or inductive loads) output

Notes: A B C D J K



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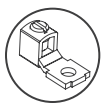

Compatible Accessories
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Series

CL **240** **A** **10** **R** **C** **H**

Load Voltage
240: 24-280 VAC

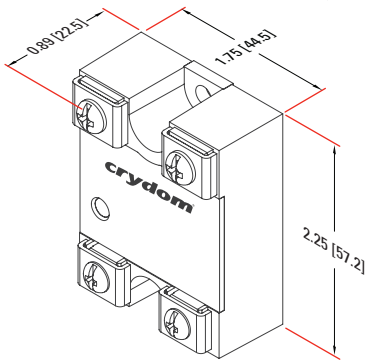
Control Voltage
A: 90-250 VAC
D: 3-32 VDC

Rated Load Current
05: 5 Amps
10: 10 Amps

Switching Type
Blank: Zero Voltage Turn-On
R: Instantaneous Turn-On

Cover
Blank: Not Included (IP00)
C: Included (IP20)

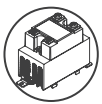
Thermal Pad
Blank: Not Included
H: Included



PCV Series • 15-90 Amps

- Easy to use proportional (phase angle) controller
- Ratings from 15 to 90 Amps @ 100-240 VAC
- Simple 2-7 VDC or 2-10 VDC analogue Control Voltage
- Designed to provide proportional AC power to a wide range of resistive loads

Notes: A B D J K



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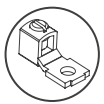

Compatible Accessories
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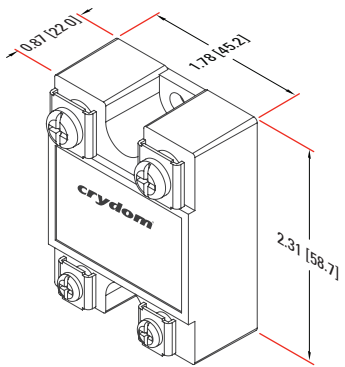
Series
10 **PCV**

Operating Voltage
24: 100-240 VAC

25

Control Voltage
7: 2-7 VDC
10: 2-10 VDC

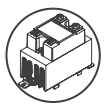
Rated Load Current
15: 15 Amps
25: 25 Amps
50: 50 Amps (10 prefix only)
75: 75 Amps (10 prefix only)
90: 90 Amps (10 prefix only)



DC60 Series • 3-7 Amps

- Economical bipolar transistor output Solid State Relay
- Ratings up to 7 Amps @ 60 VDC
- Available with either a Normally Open (standard) or Normally Closed ("-B" option) output
- Flexible 3.5-32 VDC or 90-280 VAC/DC Control Voltage
- Ideally suited for both resistive and inductive loads (inductive loads such as motors and EMR/solenoid coils must be diode suppressed)

Notes: A B C D J K



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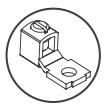

Compatible Accessories
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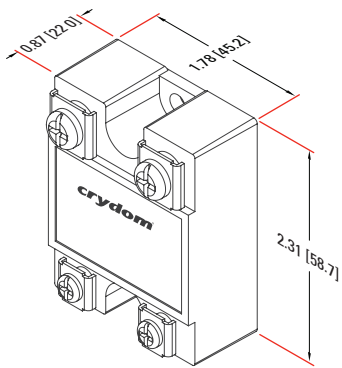
Series
DC60

Control Voltage
S: 3.5-32 VDC
SA: 90-280 VAC/DC
SA

Rated Load Current
3: 3 Amps
5: 5 Amps
7: 7 Amps
3

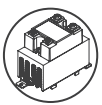
Output Type
Blank: Normally Open
-B: Normally Closed
-B



D06D Series • 60-100 Amps

- Solid State Relay with low impedance MOSFET output to minimize total power dissipation
- Ratings from 60 to 100 Amps @ 60 VDC
- Easily paralleled for high current applications
- Flexible 3.5-32 VDC Control Voltage
- Ideally suited for both resistive and inductive loads (inductive loads such as motors and EMR/solenoid coils must be diode suppressed)

Notes: A B D J K



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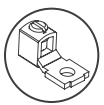

Compatible Accessories
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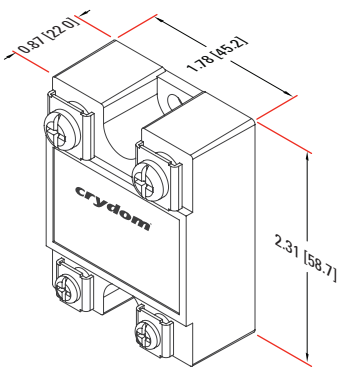
Series

Operating Voltage
06D: 0-60 VDC

D **06D** **60**

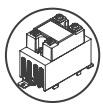
Rated Load Current
60: 60 Amps
80: 80 Amps
100: 100 Amps



PowerPlus DC Series • 10-100 Amps

- Solid State Relay with ratings up to 100 Amps @ 60 VDC, 100 Amps @ 100 VDC, 60 Amps @ 200 VDC and 20 Amps @ 400 VDC
- Flexible 4-32 VDC or 90-140 VAC Control Voltage
- Optional IP20 "touch safe" Cover for additional user protection (option "C") & thermal interface pad (option "H")
- Optically isolated high speed trigger circuit for enhanced switching
- Easily paralleled for high current applications
- Low impedance MOSFET output minimizes total power dissipation
- LED indicator for easy identification of control status
- Ideally suited for both resistive and inductive loads (inductive loads such as motors and EMR/solenoid coils must be diode suppressed)
- UL General Use (resistive) ratings

Notes: A B C D J K



Assemblies
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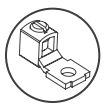

Compatible Accessories
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Series

DC **100** **A** **40** **C** **H**

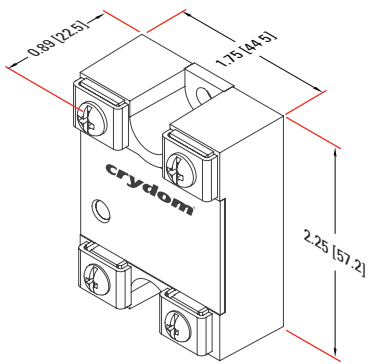
Operating Voltage
60: 7-48 VDC
100: 7-72 VDC
200: 7-150 VDC
400: 7-300 VDC

Control Voltage
A: 90-140 VAC
D: 4-32 VDC

Rated Load Current
10: 10 Amps
20: 20 Amps (Not valid with 400A suffix)
40: 40 Amps (Not valid with 400x suffixes)
60: 60 Amps (Not valid with 200A, 400x suffixes)
80: 80 Amps (60D & 100D suffixes only)
100: 100 Amps (60D & 100D suffixes only)

Cover
Blank: Not Included
C: Included

Thermal Pad
Blank: Not Included
H: Included

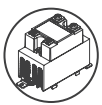


Series 1 DC • 7-100 Amps

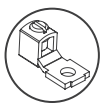
crydom classics

- Solid State Relay with low impedance MOSFET output to minimize total power dissipation
- Ratings up to 100 Amps @ 100 VDC, 40 Amps @ 200 VDC, 12 Amps @ 400 VDC,and 10 Amps @ 500 VDC
- Easily paralleled for high current applications
- Flexible 3.5-32 VDC Control Voltage
- Ideally suited for both resistive and inductive loads (inductive loads such as motors and EMR/solenoid coils must be diode suppressed)

Notes: A B D J K



Assemblies
Page 71



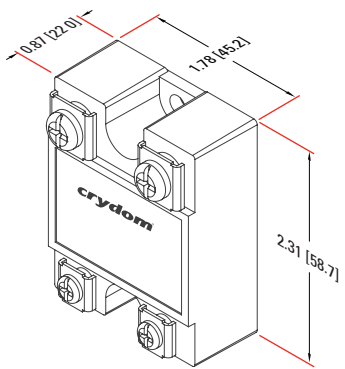
Compatible Accessories
Page 73

Series

D **1D** **07**

Operating Voltage
1D: 0-100 VDC
2D: 0-200 VDC
4D: 0-400 VDC
5D: 0-500 VDC

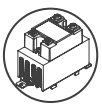
Rated Load Current
07: 7 Amps
10: 10 Amps (500 VDC only)
12: 12 Amps (not for 500 VDC)
20: 20 Amps (100 VDC only)
40: 40 Amps (100 & 200 VDC only)
60: 60 Amps (100 VDC only)
80: 80 Amps (100 VDC only)
100: 100 Amps (100 VDC only)



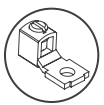
SSC Series • 25 Amps

- Solid State Relay with ratings of 25 Amps @ up to 1k VDC
- High voltage IGBT output
- Ideally suited for both resistive and inductive loads (inductive loads such as motors and EMR/solenoid coils must be diode suppressed)

Notes: A B D J K



Assemblies
Page 71



Compatible Accessories
Page 73

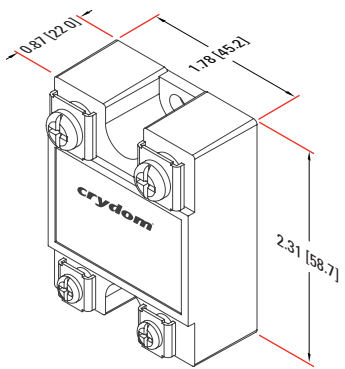
Series

SSC **1000** – **25** – **24**

Operating Voltage
1000: 0-1000 VDC

Rated Load Current
25: 25 Amps

Control Voltage
12: 8-16 VDC
24: 20-28 VDC
36: 32-40 VDC

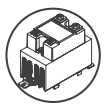


LVD Series • 40-100 Amps

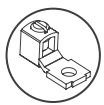
RoHS

- Low Voltage Disconnect with ratings up to 100 Amps @ 3-75 VDC
- Monitors and automatically disconnects battery systems from loads at low voltage conditions to prevent deep discharge of the batteries
- Low impedance MOSFET output minimizes total power dissipation
- Six DC control ranges available for a variety of 12 VDC and 24 VDC battery systems

Notes: A B C D J K



Assemblies
Page 71



Compatible Accessories
Page 73

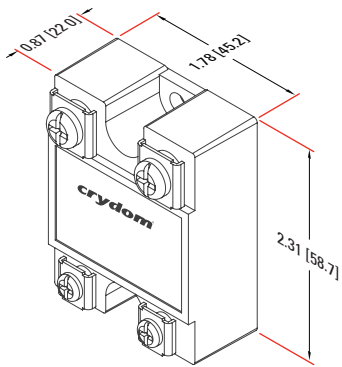
Series
LVD

Operating Voltage
75: 3-75 VDC

Rated Load Current
40: 40 Amps
60: 60 Amps
80: 80 Amps
100:100 Amps

Thermal Pad
Blank: Not Included
H: Included

Control Voltage Code
A: 36 VDC max., Hysteresis 11.0-11.5 VDC
B: 36 VDC max., Hysteresis 11.5-12.0 VDC
C: 36 VDC max., Hysteresis 12.0-12.5 VDC
D: 36 VDC max., Hysteresis 23.0-24.0 VDC
E: 36 VDC max., Hysteresis 24.0-25.0 VDC
F: 36 VDC max., Hysteresis 25.6-26.6 VDC



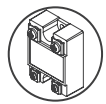
Assemblies

Crydom offers a **variety of "ready-to-use" assemblies** featuring proven Crydom Solid State Relays and Contactors installed in DIN Rail Sockets or on Panel or DIN Rail mounted Heat Sinks. Assemblies are **available for applications ranging from 1 to more than 80 Amps in both AC or DC output versions**. Any standard Crydom Panel Mount or SIP type PCB Mount SSR or Contactor can be offered as a "ready-to-use" Assembly. Contact the nearest Crydom Distributor, Representative or local Crydom Sales Office if you don't locate your exact needed Assembly in the catalog or in the Crydom website.

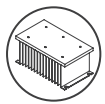
Heat Sink / SSR Assemblies

- Standard single, dual and 3 phase SSRs mounted on high efficiency HS Series heat sinks
- Ready-to-use assemblies with optimum SSR / thermal pad / heat sink combination simplifying selection, ordering and installation
- Thermal efficiency ratings from 5.0°C/W to 0.25°C/W @ 40°C ambient
- Full SSR assembly ratings up to 82.5 Amps (single phase) or 27.5 Amps per phase (three phase) in a 40°C ambient
- DIN Rail and Panel mountable versions available for both stand-alone heat sinks and SSR assemblies (most models)
- Customized solutions available using single, dual and 3 phase SSRs
- Wide variety of accessories available

Notes: A B C D E F



Panel Mount Relays
Page 8



Heat Sinks & other Accessories
Page 75

Series

Total Number of Accepted Standard SSRs
1: 1 SSR (50, 30, 25, 20, 15 & 10 suffix only)
2: 1 or 2 SSRs (20, 17, 12 & 07 suffix only)
3: 1-3 SSRs or one 3phase (10, 07, 05, 03 & 02 suffix only)

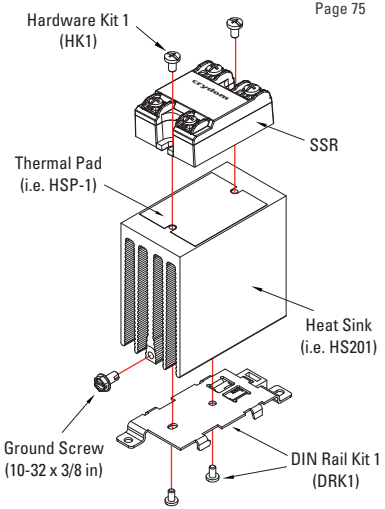
Standard Crydom SSR p/n

HS **17** **2** **DR** – **2** **D2450**

Thermal Resistance
50: 5.0 °C/W (DR suffix only)
30: 3.0 °C/W
25: 2.5 °C/W
20: 2.0 °C/W
17: 1.7 °C/W
15: 1.5 °C/W
12: 1.2 °C/W
10: 1.0 °C/W
07: 0.7 °C/W
05: 0.5 °C/W
03: 0.36 °C/W
02: 0.25 °C/W

DIN Rail Bracket
Blank: Not included
DR: Included (50, 30, 20, 15, 12 & 10 suffix only)

Number of Mounted SSRs
Blank: 1
2: 2
3: 3

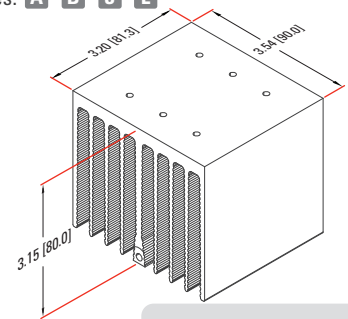


Heat Sinks • HS122

RoHS

- 1.2°C/W Thermal resistance
- Suitable for 1 or 2 single or dual SSRs
- Panel mountable or DIN Rail mountable version available as HS122DR
- Heat sink material is aluminum with black anodized finish

Notes: A B J L



HS122DR includes

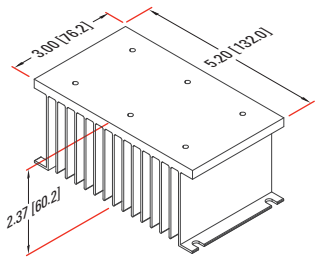
Ground Screw (10-32 x 3/8 in)
DIN Rail Kit 1 (DRK1)
Heat Sink (HS122)
Two Hardware Kits 1 (HK1)

Heat Sinks • HS103

RoHS

- 1.0°C/W Thermal resistance
- Suitable for 1, 2 or 3 single or dual SSRs; one 3 phase SSR
- Panel mountable or DIN Rail mountable version available as HS103DR
- Heat sink material is aluminum with black anodized finish

Notes: A B J L



HS103DR includes

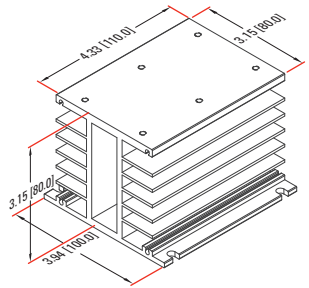
Heat Sink (HS103)
Extruded DIN Rail Bracket
Fasteners
Three Hardware Kits 1 (HK1)

Heat Sinks • HS101

RoHS

- 1.0°C/W Thermal resistance
- Suitable for 1 single or dual SSRs; one 3 phase SSR
- Panel mountable
- Heat sink material is aluminum with black anodized finish

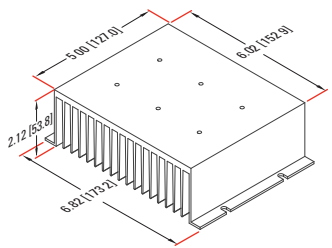
Notes: A B J L



Heat Sinks • HS073

- 0.7°C/W Thermal resistance
- Suitable for 1, 2 or 3 single or dual SSRs; one 3 phase SSR
- Panel mountable
- Heat sink material is aluminum with black anodized finish

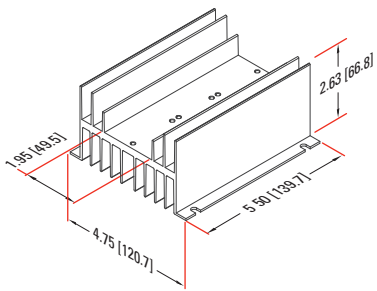
Notes: A B J L



Heat Sinks • HS072

- 0.7°C/W Thermal resistance
- Suitable for 1 or 2 single or dual SSRs
- Panel mountable
- Heat sink material is aluminum with natural finish

Notes: A B J L



Heat Sinks • HS053

- 0.5°C/W Thermal resistance
- Suitable for 1, 2 or 3 single or dual SSRs; one 3 phase SSR
- Panel mountable
- Heat sink material is aluminum with black anodized finish

Notes: A B J L