

# ***crydom***<sup>®</sup>

## **Solid State Relays & Contactors Product Guide**



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 Switching 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.

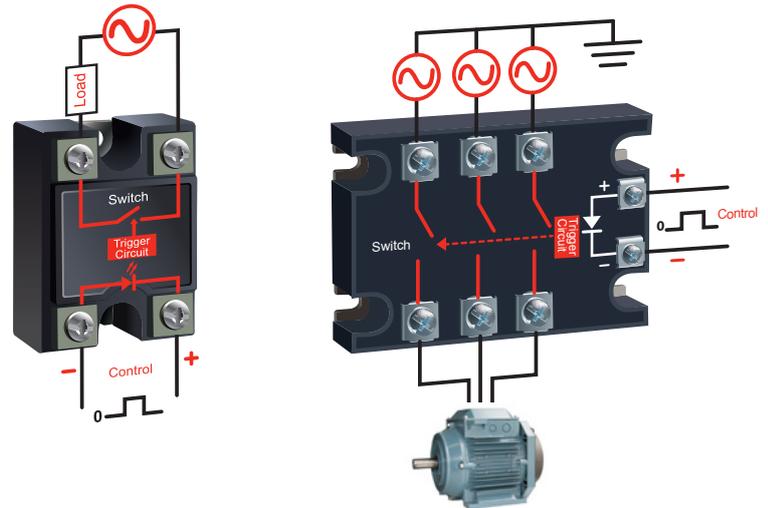
Crydom's extensive selection of standard off-the-shelf products is constantly being updated and expanded through its continuous improvement and aggressive new product development programs. Utilizing state of the art designs, materials and technology, Crydom offers a wide range of AC and DC output SSRs in industry standard Panel Mount, PCB Mount and DIN Rail 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 specializes **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.

To learn more about Crydom Solid State Switching technology and products visit [www.crydom.com](http://www.crydom.com) or contact your authorized Crydom Distributor or Crydom Customer Service Representative today.

## 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).

## Ratings by Type of Package \*

	AC Output			DC Output		
	Voltage (Volts)	Current (Amps)		Voltage (Volts)	Current (Amps)	
		Phases				
		1	2	3		
<b>Panel Mount</b>	140 280 530 660	150	50	50	1000	160
<b>DIN Rail Mount</b>	140 280 530 660	65	6	25	200	30
<b>PCB Mount</b>	140 280 530 660	25	15	15	200	20
<b>Plug-In Mount</b>	280	5			100	5

\* Crydom's maximum ratings

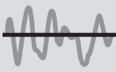
## Why Use Solid State Switching Technology?



**Long Life** • Solid state relays and contactors have no moving parts. Therefore, there is no mechanical wear and tear on the output contacts. The typical life expectancy of a solid state relay may be more than 50 times that of an electromechanical relay. Ideal for repetitive applications.



**Quiet Operation** • Solid state switching solutions make no acoustical noise when the output contacts change states. This is highly desirable in many commercial and medical applications.



**Minimum Electrical Noise** • Zero voltage turn-on and zero current turn-off allows for minimum electrical disturbances generated by SSRs.



**Low Power Consumption** • Solid state relays and contactors require very little input power "coil current" to switch large loads. Crydom solid state relays can switch up to 150 A load current with less than 15 mA current draw from the control input.



**Shock & Vibration Resistant** • Solid state switching solutions are not susceptible to erratic or unreliable operation when operating under tough environments.



**Ideal for Harsh Environments** • SSRs & SSCs do not generate sparks or electric arcs, do not bounce either electrically or mechanically. Designed as pollution degree 2 devices per IEC 60664-1. Isolation levels up to 4k V. Magnetic fields have little effect on SSR.



**High Compatibility with Control Systems** DC controlled SSRs can be switched ON and OFF by digital systems such as PLC and  $\mu$ C based systems. AC controlled SSRs can be driven by limit switches, thermal switches and sensors carrying AC control signals.



**Fast Switching** • Random turn-on solid state relays and contactors respond to a control signal in less than 100  $\mu$ s. Phase control and Burst control can be easily achieved to provide accurate AC power control.



**Position Insensitive** • Suitable for mounting in either vertical or horizontal position, "dead bug" position and adjacent mounting.

## Solid State Relay & Contactor Applications

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

### Heating Control

This encompasses the largest segment of solid state relay users. Applications include, but are not limited to: professional food equipment, plastic molding and 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.

### 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.

### Motion Control

Includes elevators, lifts, hoists, exercise equipment, conveyor systems, solar trackers, fans, door control mechanism, 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.

## Panel Mount

Series	Description	Rating [Amps]														
		5	10	12	15	18	20	25	40	50	75	90	110	125		
<b>Solid State Relays</b>																
Series 1	Signature family, 280 & 530 VAC	■					■	■	■	■	■	■	■	■	■	■
HA/HD	530 VAC		■													
Series H1 <b>NEW!</b>	1200 / 1600 V blocking, 660 VAC						■	■	■	■	■	■	■	■	■	■
CW	Heavy Duty SSR, 660 VAC		■													
CSW	Heavy Duty SSR, 280 VAC		■													
CL	Economical SSR, 280 VAC		■													
EL <b>NEW!</b>	Mini-Puck SSR, 280 VAC	■	■													
EZ	Low Profile SSR, 660 VAC		■			■										
<b>Control Solid State Relays</b>																
MCBC	Burst Fire Controller / SSR						■	■	■	■	■	■	■	■	■	■
MCPC	Phase Angle Controller / SSR						■	■	■	■	■	■	■	■	■	■
MCTC	Temperature Controller / SSR						■	■	■	■	■	■	■	■	■	■
MCS	Soft Start / Stop Controller / SSR						■	■	■	■	■	■	■	■	■	■
PCV	Proportional (Phase Angle) Ctrl			■	■	■	■	■	■	■	■	■	■	■	■	■
LPCV	Linear Proportional (Phase Angle) Ctrl			■	■	■	■	■	■	■	■	■	■	■	■	■
RPC	Proportional (Phase Angle) Ctrl			■	■	■	■	■	■	■	■	■	■	■	■	■
SMR-6	Current Monitoring & Diagnostics						■	■	■	■	■	■	■	■	■	■
<b>Solid State Dual Relays</b>																
Evolution Duals	Screw Termination, 4 Connector options						■	■	■	■	■	■	■	■	■	■
Series 1 Duals	Quick Connect & Pin Termination						■	■	■	■	■	■	■	■	■	■
<b>Solid State Contactors</b>																
53TP	3 Phase SSC, IP00 & IP20						■	■	■	■	■	■	■	■	■	■
53RV	Reversing SSC, IP20						■	■	■	■	■	■	■	■	■	■



Series	Description	Rating [Amps]												
		3	5	7	10	12	20	25	40	60	80	100	120	160
<b>Solid State Relays</b>														
DC60	Economical, 1- 60 VDC	■	■	■	■	■	■	■	■	■	■	■	■	■
DC <b>NEW!</b>	Enhanced Switching, 1- 500 VDC						■	■	■	■	■	■	■	■
I-DC	Low Impedance MOSFET, 1- 400 VDC						■	■	■	■	■	■	■	■
D06D	Economical MOSFET Output, 1- 60 VDC										■	■	■	■
EL <b>NEW!</b>	Mini-Puck SSR, 1- 100 VDC	■	■	■	■	■	■	■	■	■	■	■	■	■
SSC	High Voltage IGBT Output, 1- 1000 VDC										■	■	■	■
LVD	Low Voltage Disconnect											■	■	■
<b>Solid State Contactors</b>														
DP <b>NEW!</b>	Reversing SSC, IP00										■	■	■	■
HDC <b>NEW!</b>	High Current, 1- 200 VDC												■	■

## DIN Rail Mount



Series	Description	Rating [Amps]														
		2	3	4	5	6	8	10	12	20	25	30	35	45	55	65
<b>Solid State Relays</b>																
DRA-CN	6 mm	■														
DRA	10/54 mm	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SeriesOne DR	11 mm						■	■	■	■	■	■	■	■	■	■
CKR	22.5 mm															
CMR	45 mm															
SeriesOne DR Dual	18 mm															
SeriesOne DR Timer <b>NEW!</b>	11 mm						■	■	■	■	■	■	■	■	■	■
<b>Solid State Contactors</b>																
DRA3P <b>NEW!</b>	3 Phase	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
DRA3R <b>NEW!</b>	Reversing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
CTR	3 Phase															
<b>Solid State Relays</b>																
DRA-CN	6 mm															
DRA	10/54 mm															
SeriesOne DR	11/18 mm															
SeriesOne DR Timer <b>NEW!</b>	11 mm															
CKM	45 mm															
<b>Solid State Contactors</b>																
DRA4D <b>NEW!</b>	Reversing SSC															

## PCB Mount

Series	Description	Rating [Amps]									
		1	1.5	2	3	4	5	8	12	25	
<b>Solid State Relays</b>											
ASO	Mini SIP SSR with ratings up to 2 Amps @ 12 - 280 VAC	■	■								
LC	Mini SIP SSR with ratings up to 2 Amps @ 12 - 280 VAC	■	■								
MP	SIP SSR with ratings up to 4 Amps @ 24 - 280			■	■						
CX	SIP SSR with ratings up to 5 Amps @ 48 - 660 VAC					■	■				
MCX	SIP SSR with ratings up to 5 Amps @ 48 - 660 VAC							■	■		
LS	SIP SSR with ratings up to 12 Amps @ 24 - 280 VAC									■	■
PF	SIP SSR with ratings up to 25 Amps @ 48 - 660 VAC										■
SPF	SIP SSR with ratings up to 25 Amps @ 48 - 660 VAC										■
DPA	DIP SSR with ratings up to 1 Amps @ 20 - 280 VAC	■									
SDV	DIP SSR with ratings up to 1.5 Amps @ 12 - 280 VAC	■									



Series	Description	Rating [Amps]				
		3	5	6	10	20
<b>Solid State Relays</b>						
DMO	Mini SIP SSR with ratings up to 3 Amps @ 60 VDC	■	■	■	■	■
CMX	SIP SSR with ratings up to 20 Amps @ 60 VDC	■	■	■	■	■
MP	SIP SSR with ratings up to 3 Amps @ 60 VDC	■	■	■	■	■

## Plug-In Mount



AC Output		Rating [Amps]
Series	Description	2 3 5
CN	Thin SSR with ratings up to 2 Amps @ 24 - 280 VAC	■
ED <b>NEW!</b>	SSR in industry standard EMR package with ratings up to 5 Amps @ 24 - 280 VAC	■ ■ ■
DC Output		Rating [Amps]
Series	Description	0.1 3.5 5
CN	Thin SSR with ratings up to 3.5 Amps @ 1 - 60 VDC	■ ■ ■
ED <b>NEW!</b>	SSR in industry standard EMR package with ratings up to 5 Amps @ 1 - 100 VDC	■ ■ ■

## SSR / Heat Sink Assemblies



Part No.	Thermal Resistance [°C/W]
HS501DR	5.0
HS301 / HS301DR	3.0
HS251	2.5
HS201 / HS201DR	2.0
HS172	1.7
HS151 / HS151DR	1.5
HS103 / HS103DR	1.0
HS072	0.7
HS053	0.5

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.

## Accessories

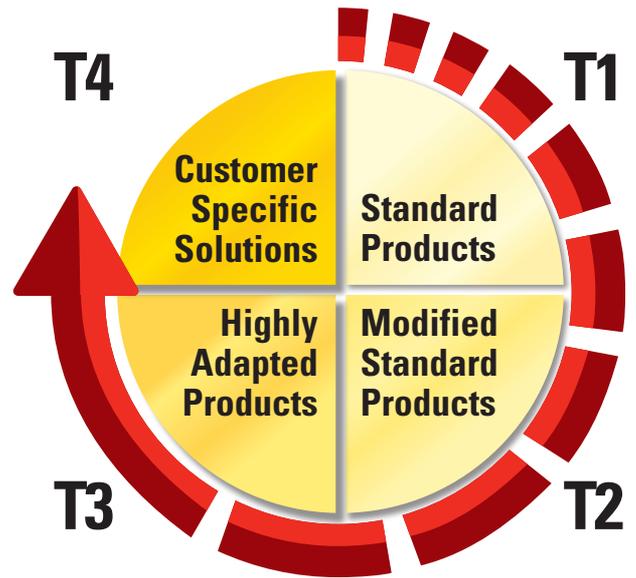


Product	Description
Covers	Clear plastic cover for single (KS100, KS100-SMR) & 3 Phase SSRs (KS300)
DIN Rail Bracket	To mount HS Series Heat Sinks onto 35 mm DIN Rail profiles (DRK1)
Filters	EMI noise suppression filters for AC single & 3 Phase systems (1F25, 3F20)
Hardware Kits	HK1 (mounting screws)
Heat Sinks	Available with thermal resistance from 0.5 to 5.0 °C/W
ID Marker Strips	10 plastic strips with 10 printed (CNLN, CNL2) or unprinted (CNLB) markers
Lug Terminals <b>NEW!</b>	Copper wire lugs for AWG 6 to 0 (TRM1), AWG 14 to 6 (TRM6) and AWG 4 to 3/0 (TRM3/0)
Sockets • CN Series	DIN Rail mountable sockets for CN Series SSRs (DRSCN05, DRSCN24)
Sockets • DRS Series	DIN Rail mountable sockets for PCB SIP SSRs, available for 1 (DRS1) & 4 (DRS4) channels
Sockets • ED Series <b>NEW!</b>	DIN Rail mountable socket for ED Series SSRs, finger safe IP10 (DRSED)
Sockets • ED Series <b>NEW!</b>	PCB mountable socket for ED Series SSRs (PCBSED)
Thermal Pads <b>NEW!</b>	For mini (HSP-6), hockey (HSP-2) & large (HSP-5) puck SSRs with adhesive on one side
Thermal Pads	For hockey (HSP-1, 25 pack) & large (HSP-3) puck SSRs, non adhesive

## Custom Products

Crydom has the unique capability to provide custom products to meet your specific application requirements. Our Customer Adaptation Center or **C.A.C.** is dedicated 100% to designing OEM products. A wide variety of modifications can be applied to any of our basic product groups (PCB, Panel, Plug-In and Din Rail Mount SSRs) to result in a customized solution that will meet the most demanding requirements.

## Adaptation Wheel



We can help you get that competitive edge necessary to be a leader in your industry with a quality customized solution. The **CAC** has the ability to fast-track design and prepare prototypes for your review within days depending of the level of customization you might require, from labeling or a simple assembly, to a more complex part that will perfectly fit and complement your equipment design.

Our fully equipped lab allows the **CAC** to perform in-house all electrical and mechanical tests necessary to evaluate, adjust and finalize any design; suitable for UL, CSA and TUV approval. The result will be a customized solution that will exceed the stated performance criteria you may have for your application.

If you cannot find a standard product in our catalog that meets your requirements, please ask your Crydom distributor or representative for more information about the CAC.



# crydom®

## AMERICA



### United States & Canada

**Crydom Inc**  
2320 Paseo de las Americas,  
Suite 201  
San Diego, CA 92154

**Sales Support:**  
Tel.: +1 (877) 502 5500  
Fax: +1 (619) 210 1590  
[sales@crydom.com](mailto:sales@crydom.com)

**Technical Support:**  
Tel.: +1 (877) 702 7700  
[support@crydom.com](mailto:support@crydom.com)

### Mexico

**Automatismo Crouzet  
S.A. de C.V.**  
Calzada Zavaleta 2505-C Col  
Sta Cruz Buenavista C.P.  
72150 - Puebla

**Sales Support:**  
Tel. : +52 (222) 409 7000  
Fax : +52 (222) 409 7810  
[sales-mx@crydom.com](mailto:sales-mx@crydom.com)

### Southern & Central American Countries CST Latinoamerica

Alameda Rio Negro, 1030,  
18º andar – Conjunto 1803  
CEP: 06454-000  
Barueri - São Paulo  
Brasil

Tel.: +55 (11) 2505 7500  
Fax: +55 (11) 2505 7507

## EUROPE, MIDDLE EAST & AFRICA



### United Kingdom

**Crydom SSR Ltd**  
Arena Business Centre  
Holyrood, Close  
Poole, Dorset BH17 7FJ

**Sales Support**  
Tel.: +44 (0) 1202 606030  
Fax: +44 (0) 1202 606035  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

**Technical Support**  
[support-europe@crydom.com](mailto:support-europe@crydom.com)

### Austria & Switzerland

Tel.: +44 (0) 1202 606030  
Fax: +44 (0) 1202 606035  
[vertrieb@crydom.com](mailto:vertrieb@crydom.com)

### Belgium

Tel.: +32 (0) 2 460 4413  
Fax: +32 (0) 2 461 2614  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

### France

Tel.: +33 (0) 810 123 963  
Fax: +33 (0) 810 057 605  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

### Germany

Tel.: +49 (0) 180 3000 506  
Fax: +49 (0) 180 3205 227  
[vertrieb@crydom.com](mailto:vertrieb@crydom.com)

### Italy

Tel.: +39 (0) 2 665 99 260  
Fax: +39 (0) 2 665 99 268  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

### Spain

Tel.: +34 902 876 217  
Fax: +34 902 876 219  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

### Netherlands

Tel.: +31 (0) 71 582 0068  
Fax: +31 (0) 71 542 1648  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

### Middle East, Africa & Other European Countries

Tel.: +44 (0) 1202 606030  
Fax: +44 (0) 1202 606035  
[sales-europe@crydom.com](mailto:sales-europe@crydom.com)

## ASIA PACIFIC



### China & Hong Kong Custom Sensors & Technologies Asia (Shanghai) Ltd.

13th floor  
Chang Feng International  
Tower  
89 Yunling Road (East)  
Putuo District  
Shanghai, 200062

**Sales Support**  
Tel.: +86 (0) 21 6065 7725  
Fax: +86 (0) 21 6065 7749  
[sales-cn@crydom.com](mailto:sales-cn@crydom.com)

**Technical Support**  
[support-cn@crydom.com](mailto:support-cn@crydom.com)

### South Korea Custom Sensors & Technologies

2F, Jeil Bldg.,  
94-46 Youngdeungpo-dong  
7-ga Youngdeungpo-gu,  
Seoul, 150-037  
Tel.: +82 2 2629 8312  
Fax: +82 2 2629 8310  
[korea@cstsensors.com](mailto:korea@cstsensors.com)

### India

**CST Sensors India Pvt Ltd**  
4th Floor, Trident Towers,  
No. 23, 100 Ft- Ashoka Pillar Road,  
2nd Block, Jayanagar,  
Bangalore- 560011  
Tel: +91 (80) 4113 2204 /05  
Fax: +91 (80) 4113 2206  
[india@cstsensors.com](mailto:india@cstsensors.com)

### East Asian & Pacific Countries & Custom Sensors & Technologies

2F, No. 39, Ji-Hu Road  
Nei-Hu Dist.  
Taipei 114, Taiwan  
Tel.: +886 2 8751 6388 ext.131  
Fax: +886 2 2657 8725  
[eap@cstsensors.com](mailto:eap@cstsensors.com)  
[taiwan@cstsensors.com](mailto:taiwan@cstsensors.com)

© 2012 Crydom Inc., All Rights Reserved.

Specifications are subject to change without prior notice.  
Crydom and the Crydom logo are registered trademarks  
of Crydom Inc.

10/2012

CAT/CR/RC/EN

Distributed by :

Rev.102412