



**| CSW SERIES**  
PANEL MOUNT



**Features**

- Ratings from 10A to 90A @ 24-280 VAC
- 3-32 VDC input range
- Low off-state leakage current (snubberless)
- SCR output for heavy industrial loads
- EMC Compliant for reliable operation in harsh environments
- Replaces the CSD and CSE Series relays
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- Direct bond copper substrate
- Direct power lead frame
- Epoxy free design

**PRODUCT SELECTION**

Control Voltage	10A	25A	50A	75A	90A
3-32 VDC	CSW2410	CSW2425	CSW2450	CSW2475	CSW2490

**ORDERING OPTIONS**

**CSW - 24 - 10 - K - P - G - S - H - -10**

<b>Series</b>	CSW
<b>Operating Voltage</b>	24: 24-280 VAC
<b>Rated Load Current</b>	10: 10 Amps    25: 25 Amps    50: 50 Amps 75: 75 Amps    90: 90 Amps
<b>Termination</b>	Blank: Screw F: Quick Connect (Up to 50 Amps. Single pair [up to 25 Amps] Double pair [up to 50 Amps]) (1) K: Hex standoffs for PC Board mounting (2)
<b>Overvoltage Protection</b>	Blank: Not Included P: Included (3)
<b>Input Status LED</b>	Blank: Not Included G: Included
<b>Snubber</b>	Blank: Not Included S: Included
<b>Thermal Pad</b>	Blank: Not Included H: Included
<b>Switching Type</b>	Blank: Zero Voltage Turn-On -10: Instantaneous Turn-On (4)

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

**Note:** Not all part number combinations are available. Contact Crydom Technical support for information on the availability of a specific part number.

## OUTPUT SPECIFICATIONS (5)

Description	10 A	25 A	50 A	75 A	90 A
Operating Voltage (47-440Hz) [Vrms] (6)	24-280	24-280	24-280	24-280	24-280
Transient Overvoltage [Vpk]	600	600	600	600	600
Maximum Off-State Leakage Current @ Rated Voltage [mA] (7)	1.0	1.0	1.0	1.0	1.0
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500	500	500	500
Maximum Load Current [A] (8)	10	25	50	75	90
Minimum Load Current [mA]	150	150	150	150	150
Maximum 1 Cycle Surge Current (50/60) [A] [pk]	115/120	239/250	597/625	954/1000	1145/1200
Maximum On-State Voltage Drop @ Rated Current [Vrms]	1.15	1.15	1.15	1.15	1.15
Thermal Resistance Junction to Case [Rjc] [°C/W]	1.03	0.8	0.45	0.3	0.27
Maximum I <sup>2</sup> t for Fusing 50/60Hz (1/2 cycle) [A <sup>2</sup> sec]	66/60	285/259	1770/1621	4555/4150	6560/5976
Minimum Power Factor (at Maximum Load)	0.5	0.5	0.5	0.5	0.5

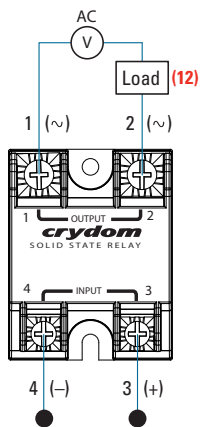
## INPUT SPECIFICATIONS (5)

Description	Parameters
Control Voltage Range (9)	3-32 VDC
Minimum Turn-On Voltage	3 VDC
Must Turn-Off Voltage	1.0 VDC
Maximum Reverse Voltage	-32 VDC
Typical Input Current	10 mA @ 12 VDC
Nominal Input Impedance	Active Current Limiter
Maximum Turn-On Time [msec] (10)	1/2 Cycle
Maximum Turn-Off Time [msec]	1/2 Cycle

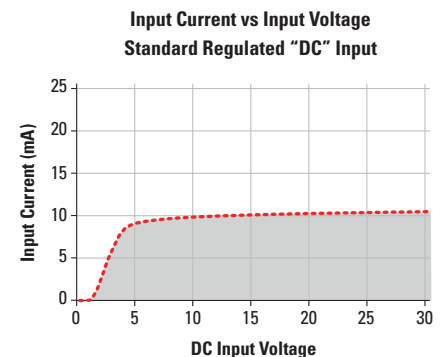
## GENERAL SPECIFICATIONS (5)

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 <sup>9</sup> Ohm
Maximum Capacitance, Input/Output	10 pF
Ambient Operating Temperature Range	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.6 oz (74.9 g)
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Input Terminal Screw Torque Range (in-lb/Nm)	13-15/1.5-1.7
Load Terminal Screw Torque Range (in-lb/Nm)	18-20/2.0-2.2
SSR Mounting Screw Torque Range (in-lb/Nm)	18-20/2.0-2.2
Input/Load Terminal Screw Torque Range (in-lb/Nm) (2)	w/"K" option 8-10 / 0.9-1.13
Input/Output Terminal Screw Thread Size	#6-32 UNC / #8-32 UNC
Humidity per IEC60068-2-78	93% non-condensing
LED Status Indicator (Color)	w/"G" option (green)
MTBF (Mean Time Between Failures) at 40°C ambient temperature (11)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (11)	7,210,376 hours (823 years)

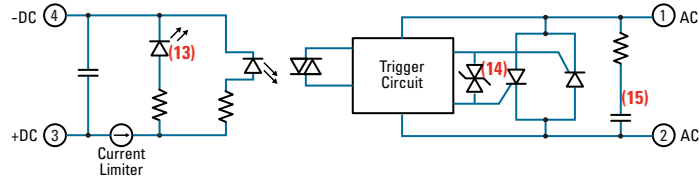
## WIRING DIAGRAM



Recommended Wire Sizes		
Terminals	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Input	24 AWG (0.2 mm <sup>2</sup> ) / 0.2 [minimum]	10 [44.5]
	2 x 12 AWG (3.3 mm <sup>2</sup> ) / 3.3 [maximum]	90 [400]
Output	20 AWG (0.5 mm <sup>2</sup> ) / 0.518 [minimum]	30 [133]
	2 x 10 AWG (5.3 mm <sup>2</sup> ) / 5.3	110 [490]
	2 x 8 AWG (8.4 mm <sup>2</sup> ) / 8.4 [maximum]	90 [400]



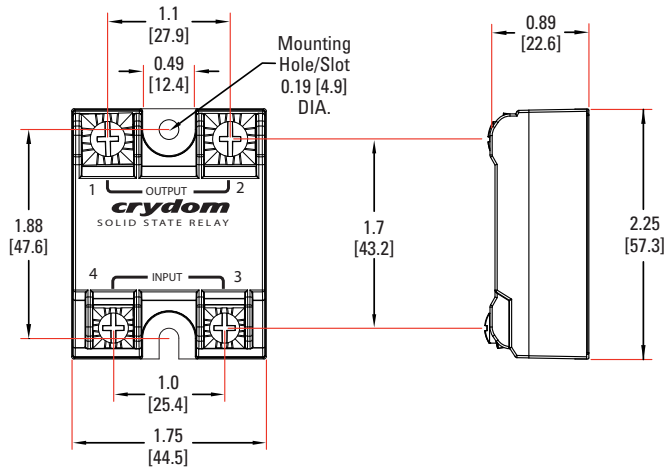
# EQUIVALENT CIRCUIT BLOCK DIAGRAM



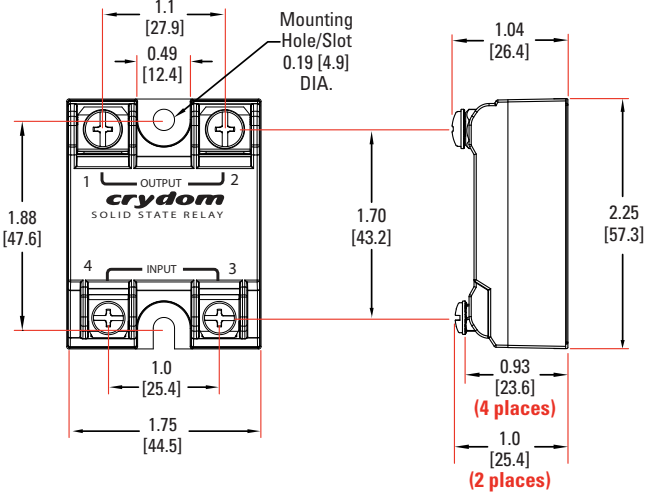
# MECHANICAL SPECIFICATIONS (5)

Tolerances:  $\pm 0.02$  in / 0.5 mm  
 All dimensions are in: inches [millimeters]

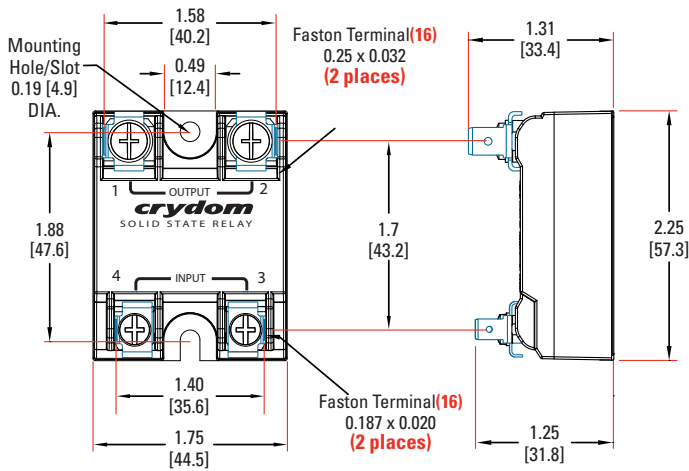
## Screw Termination



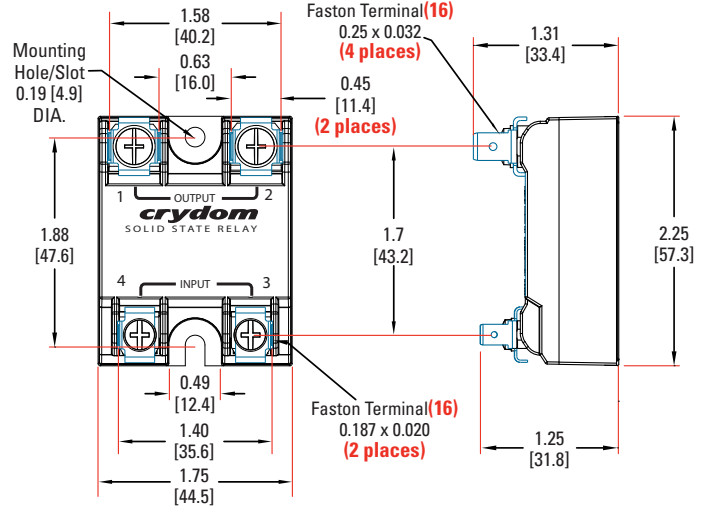
## Hex Standoff Termination ("K" Option) (2)



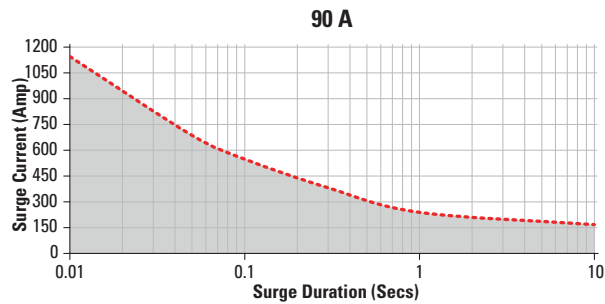
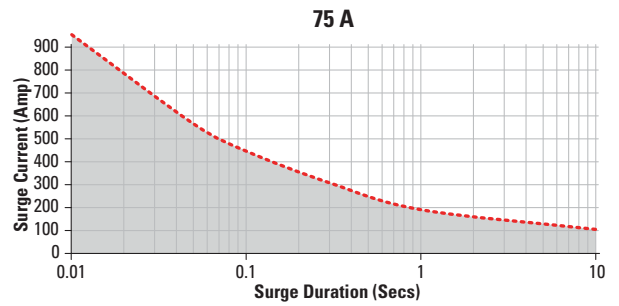
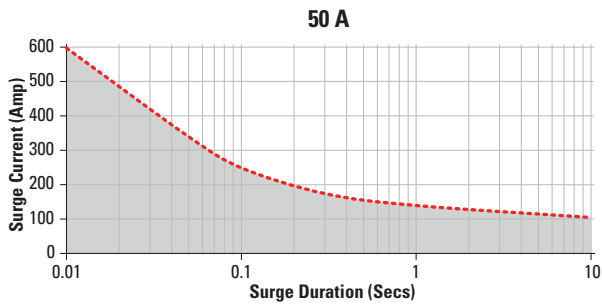
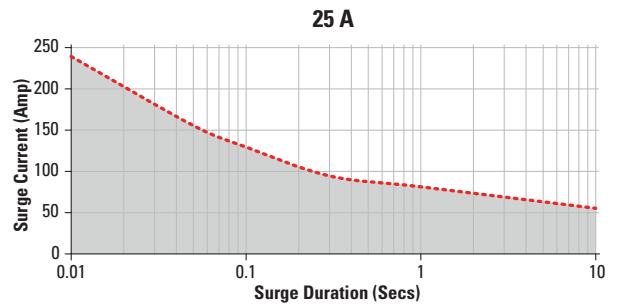
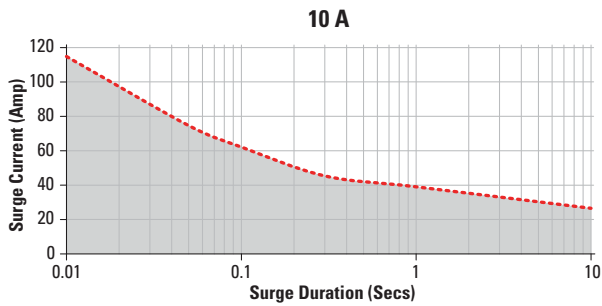
## Quick Connect Termination ("F" Option) - Up to 25 Amp (1)



## Quick Connect Termination ("F" Option) - Up to 50 Amp (1)

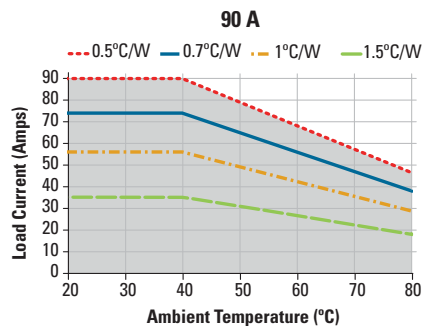
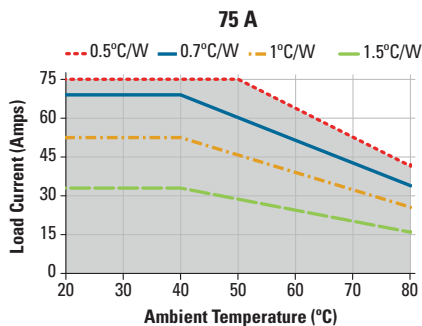
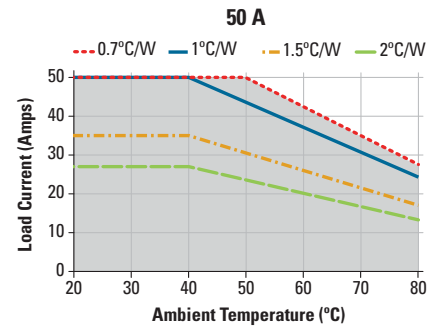
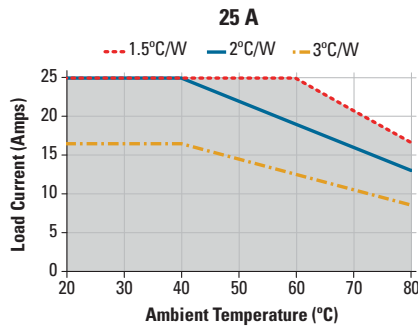
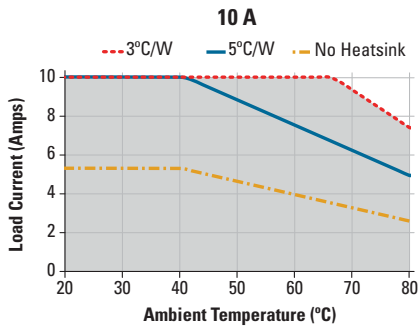


# SURGE CURRENT INFORMATION



Non repetitive peak surge current at Tj initial 40°C.

# THERMAL DERATE INFORMATION



## AGENCY APPROVALS AND CERTIFICATIONS

Designed in accordance with the requirements of IEC 62314  
 IEC 61000-4-2 : Electrostatic Discharge – Level 3  
 IEC 61000-4-4 : Electrically Fast Transients – Level 3  
 IEC 61000-4-5 : Electrical Surges – Level 3  
 IEC 60068-2-6: Vibration 0.33mm and 0.75mm Amplitude over 10-55 Hz  
 IEC 60068-2-27: Shock Resistance 15g/11ms

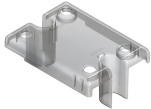


## ACCESORIES

### Protective Cover & Hardware Kits

#### Protective Cover

Part number: KS101



Clear plastic cover compatible with all new S1 designs. Safety covers provide added protection from electric shock when installing or checking equipment.

#### Hardware Kit

Part number: HK4



Bag with 2 square brass accessories and 2 screw 8-32 x 5/8 for output. Used to mount TRM1 lug terminals.

### Recommended Accessories

Cover	Hardware Kit	Heat Sink Part No.	Thermal Resistance	Lug Terminal	Thermal Pad
			[°C/W]		
KS101	HK1	HS501DR	3.0	TRM1	HSP-1
		HS301 / HS301DR	2.5	TRM6	HSP-2
	HS251	2.0			
	HS202 / HS202DR	2.0			
	HS201 / HS201DR	1.7			
	HS172	1.5			
	HS151 / HS151DR	1.2			
	HS122 / HS122DR	1.0			
	HS103 / HS103DR	1.0			
	HS101	0.7			
	HS073	0.7			
	HS072	0.5			
	HS053	0.36			
	HS033	0.25			
HS023					

## GENERAL NOTES

- (1) Single pair (up to 25 A) Double pair\* (up to 50 A). \*Caution: User must connect both pairs.
- (2) Option "K" is designed and tested for use with printed circuit boards or ring/fork terminals having a thickness between 0.031 and 0.093 inches (0.79 to 2.36 mm), and loads rated up to 50 Amps. For higher load currents, the "K" standoff temperature must not exceed 105°C. For additional application assistance please contact Crydom Technical Support.
- (3) Output will self trigger between 450-600Vpk, not suitable for capacitive loads.
- (4) Instantaneous turn-on version is not recommended for capacitive loads. Use zero turn-on only.
- (5) All parameters at 25°C unless otherwise specified.
- (6) For "S" option, operating voltage frequency is 47-63Hz.
- (7) For parts with option "S" maximum leakage current is 10mA.
- (8) Heat sinking required, see derating curves.
- (9) Increase minimum voltage by 1V for operations from -20 to -40°C.
- (10) Turn-on time for instantaneous turn-on version ("-10" option) is 0.1ms.
- (11) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (12) Load can be wired to either SSR output terminal 1 or 2.
- (13) Elective Input Status LED, "G" option
- (14) Elective Overvoltage Protection, "P" option.
- (15) Elective Internal Snubber, "S" option.
- (16) Mechanical dimensions vary from G3 models.

For additional information or specific questions, contact Crydom Technical Support.



## 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.**

Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at [www.sensata.com](http://www.sensata.com) SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

## CONTACT US

### Americas

+1 (877) 502 5500 – Option 2  
[sales.crydom@sensata.com](mailto:sales.crydom@sensata.com)

### Europe, Middle East & Africa

+44 (1202) 416170  
[ssr-info.eu@sensata.com](mailto:ssr-info.eu@sensata.com)

### Asia Pacific

[sales.isasia@list.sensata.com](mailto:sales.isasia@list.sensata.com)  
 China +86 (21) 2306 1500  
 Japan +81 (45) 277 7117  
 Korea +82 (31) 601 2004  
 India +91 (80) 67920890  
 Rest of Asia +886 (2) 27602006  
 ext 2808

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Sensata:

[CSW2425](#) [CSW2475](#) [CSW2450](#) [CSW2490](#) [CSW2410](#) [CSW2410-10](#) [CSW2410P](#) [CSW2425-10](#) [CSW2425P](#)  
[CSW2450-10](#) [CSW2450P](#) [CSW2475-10](#) [CSW2475P](#) [CSW2490-10](#) [CSW2490P](#) [CSW2425F](#) [CSW2425FG](#)  
[CSW2425G](#) [CSW2425S](#) [CSW2450G](#) [CSW2425FS-10](#) [CSW2425H](#) [CSW2425K](#) [CSW2425KP](#) [CSW2490G](#)