| 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

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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

Serires

CSW

Operating Voltage

24: 24-280 VAC

Rated Load Current

10: 10 Amps **25:** 25 Amps **50:** 50 Amps
75: 75 Amps **90:** 90 Amps

Termination

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)

Overvoltage Protection

Blank: Not Included
P: Included (3)

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 (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.

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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 [mArms] (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 [Arms] (8)	10	25	50	75	90
Minimum Load Current [mArms]	150	150	150	150	150
Maximum 1 Cycle Surge Current (50/60) [Apk]	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^2t for Fusing 50/60Hz (1/2 cycle) [A^2 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

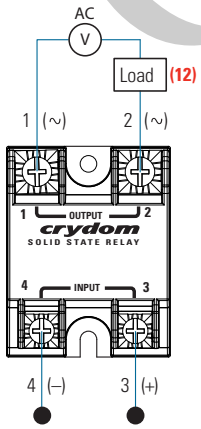
INPUT SPECIFICATIONS (5)

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)	10^9 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)

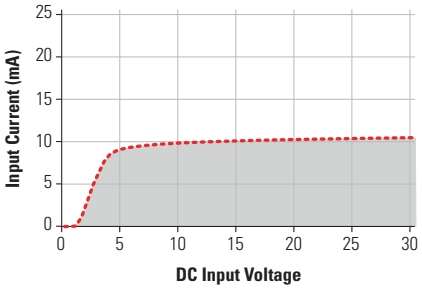
WIRING DIAGRAM



Recommended Wire Sizes

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

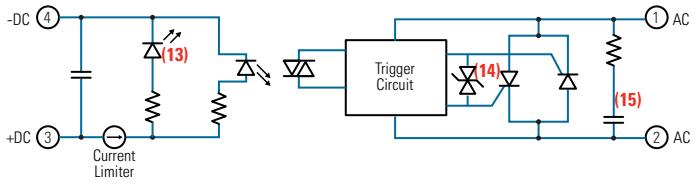
Input Current vs Input Voltage
Standard Regulated "DC" Input



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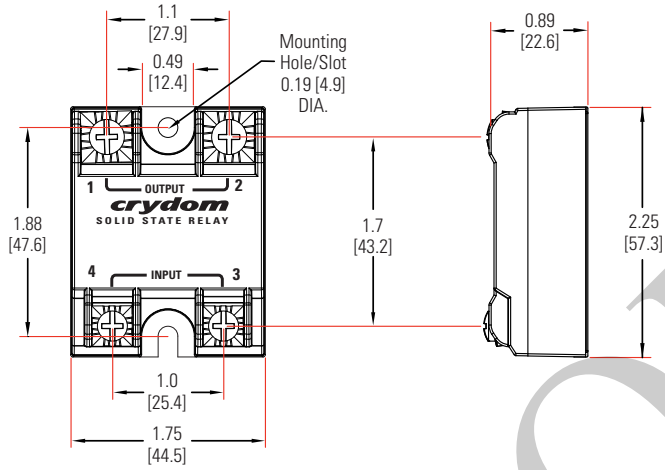
EQUIVALENT CIRCUIT BLOCK DIAGRAM



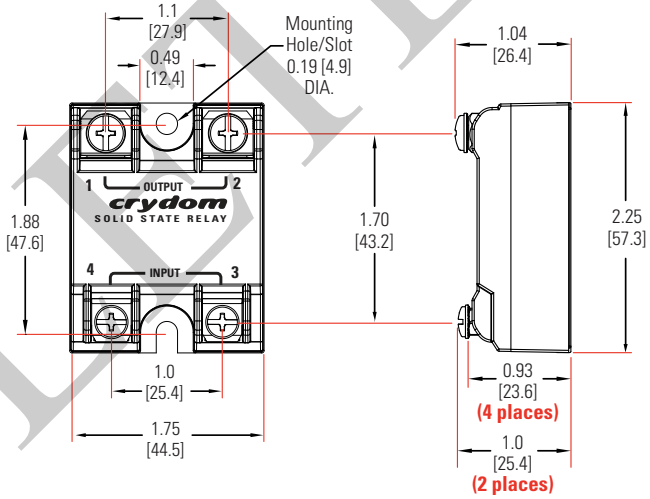
MECHANICAL SPECIFICATIONS (5)

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

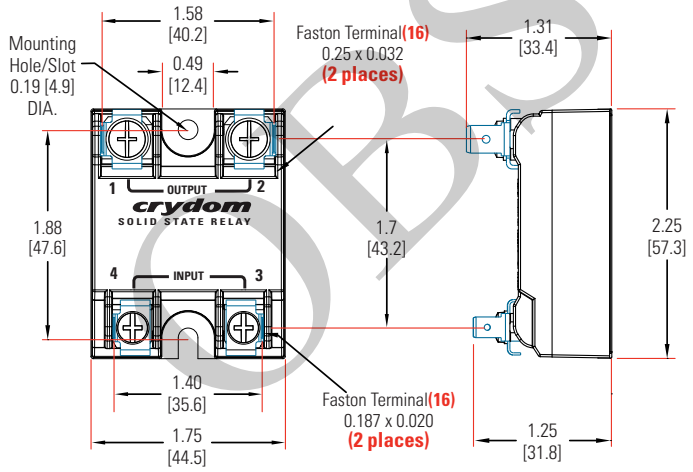
Screw Termination



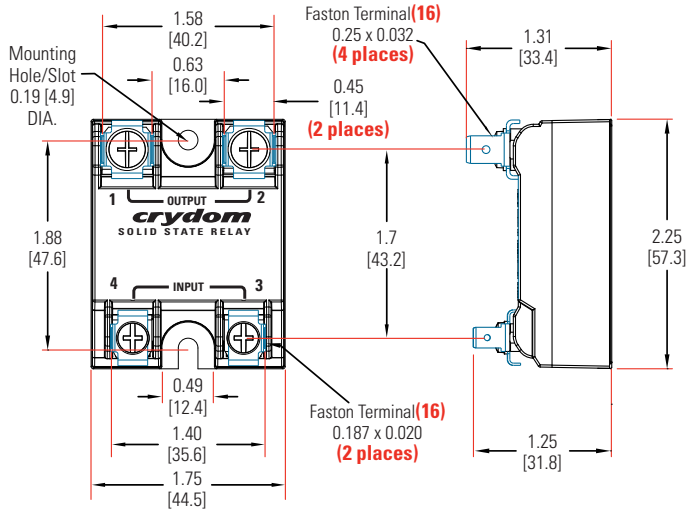
Hex Standoff Termination ("K" Option) (2)



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



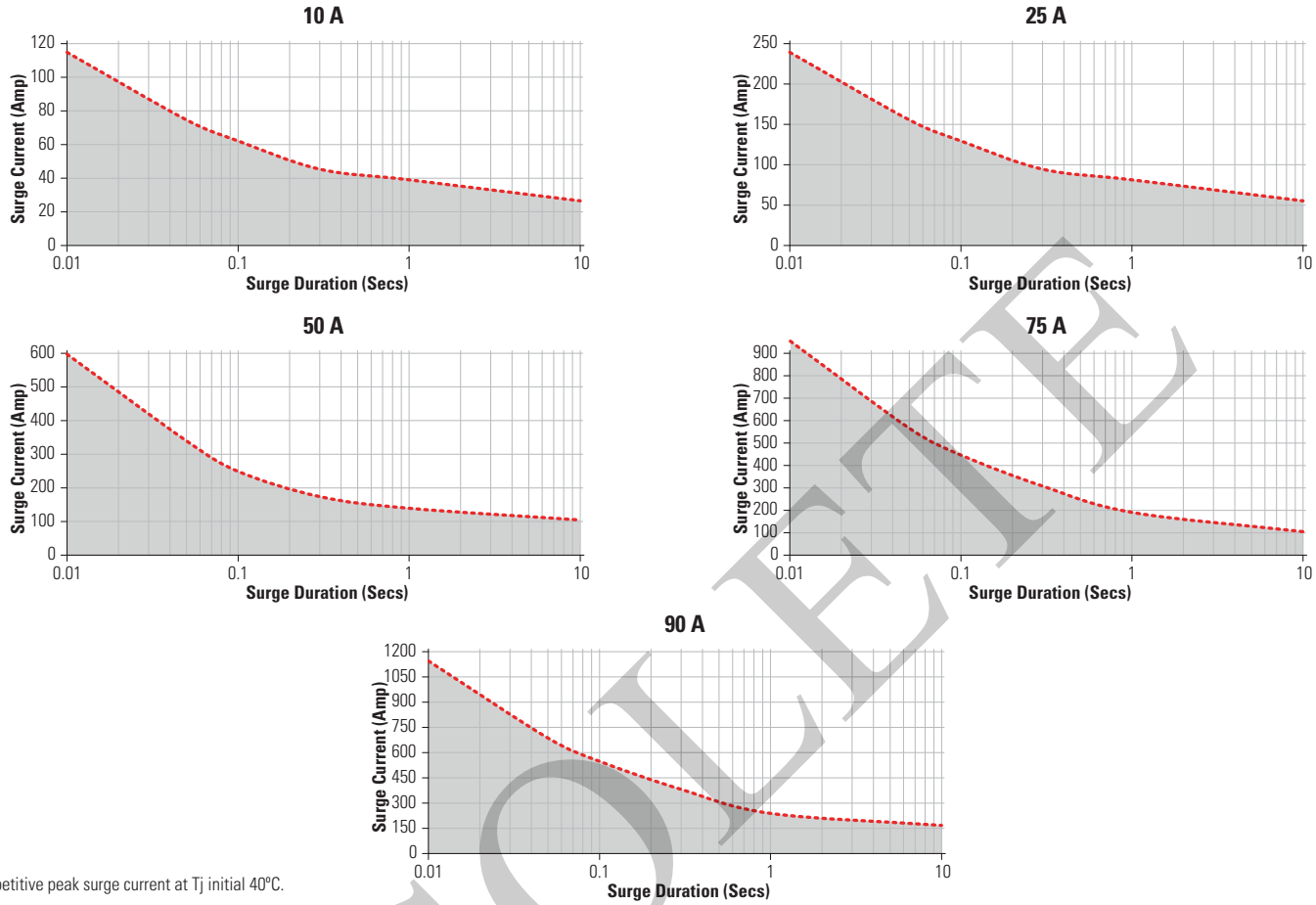
Quick Connect Termination ("F" Option) - Up to 50 Amp (1)



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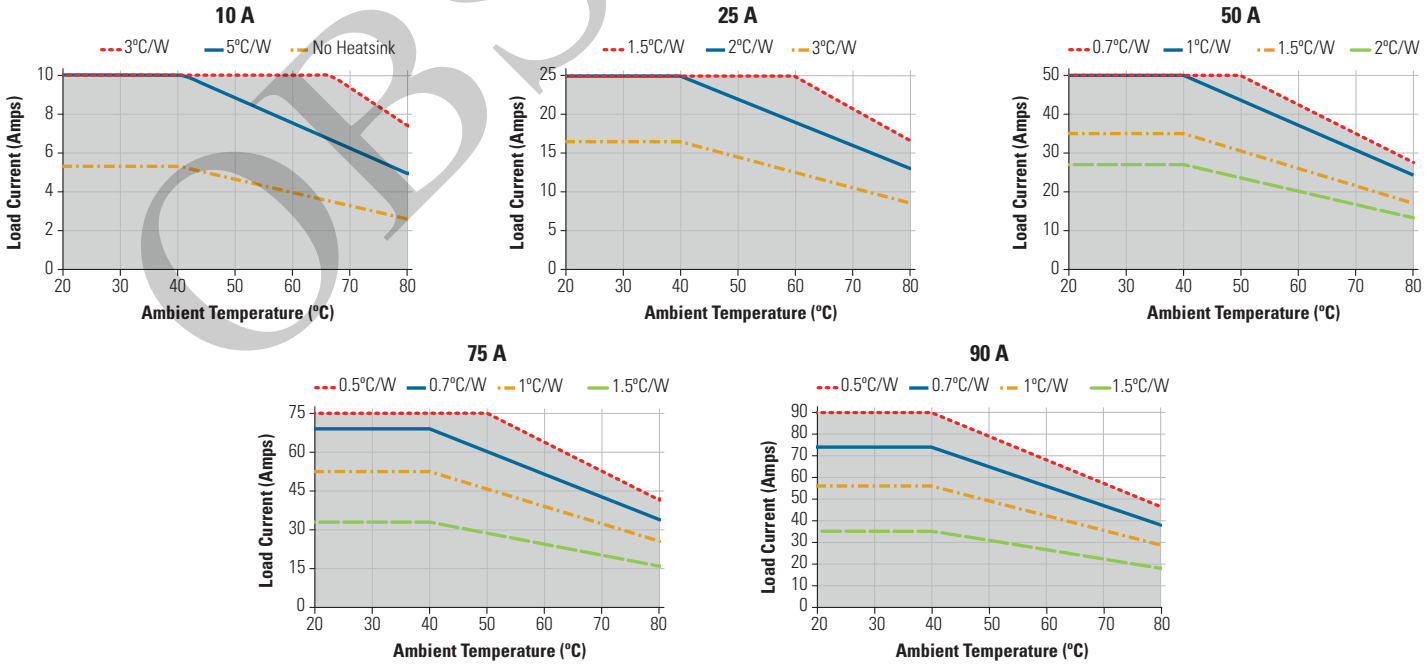
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SURGE CURRENT INFORMATION



Non repetitive peak surge current at Tj initial 40ºC.

THERMAL DERATE INFORMATION



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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 600068-2-6: Vibration 0.33mm and 0.75mm Amplitude over 10-55 Hz
IEC 600068-2-27: Shock Resistance 15g/11ms

c UL us E116949 LR81689 CE RoHS

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 TMR1 lug terminals.

Recommended Accessories

Cover	Hardware Kit	Heat Sink Part No.	Thermal Resistance [°C/W]	Lug Terminal	Thermal Pad
KS101	HK1	HS501DR	3.0	TRM1	HSP-1
	HK4	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			

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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 recomended 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.

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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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