



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**

Series
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.

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 rms] (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 rms] (8) | 10 | 25 | 50 | 75 | 90 |
| Minimum Load Current [mA rms] | 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 [V rms] | 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 ² t 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 |

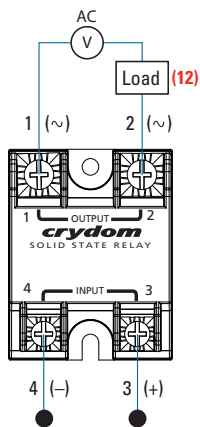
INPUT SPECIFICATIONS (5)

| 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 |

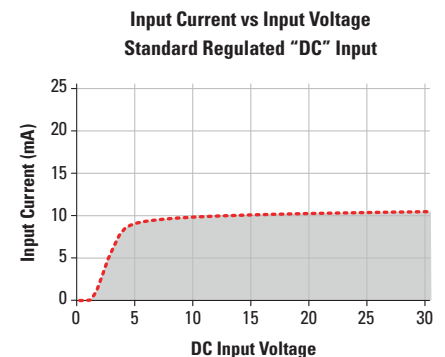
GENERAL SPECIFICATIONS (5)

| 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) |

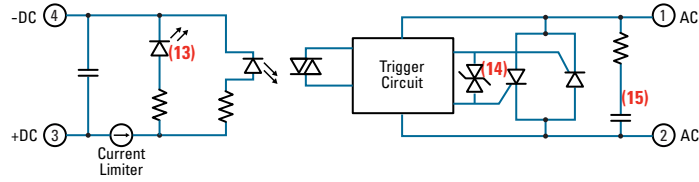
WIRING DIAGRAM



| 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 [maximum] | 110 [490] |
| | 2 x 8 AWG (8.4 mm ²) / 8.4 [maximum] | 90 [400] |



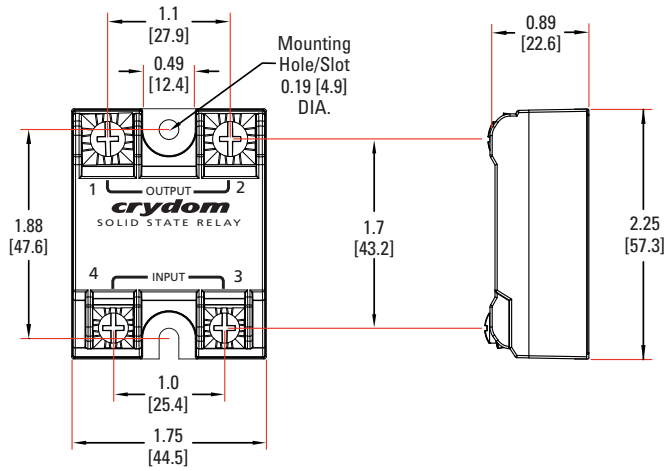
EQUIVALENT CIRCUIT BLOCK DIAGRAM



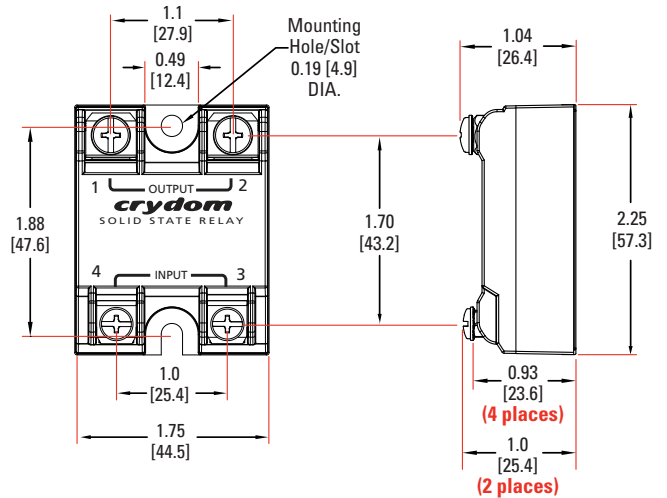
MECHANICAL SPECIFICATIONS (5)

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

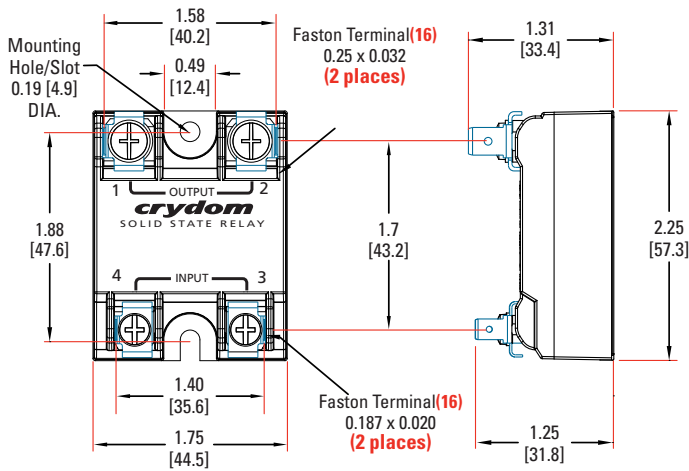
Screw Termination



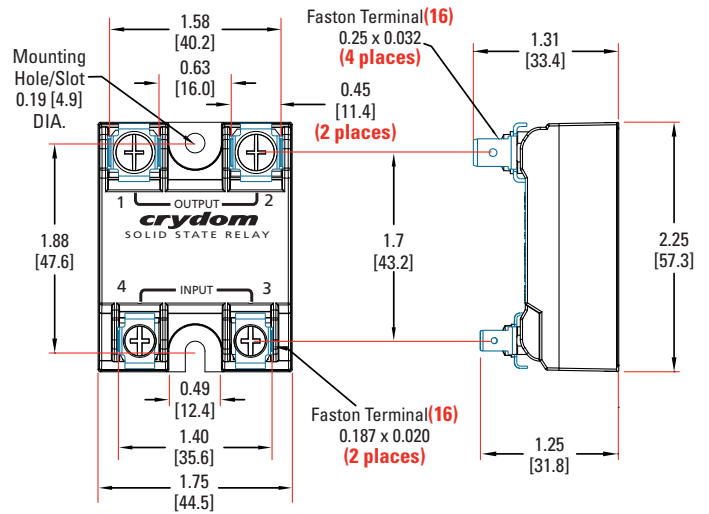
Hex Standoff Termination ("K" Option) (2)



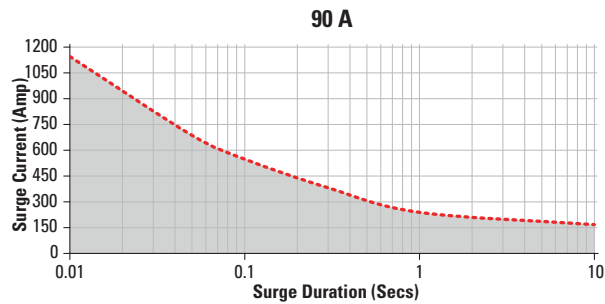
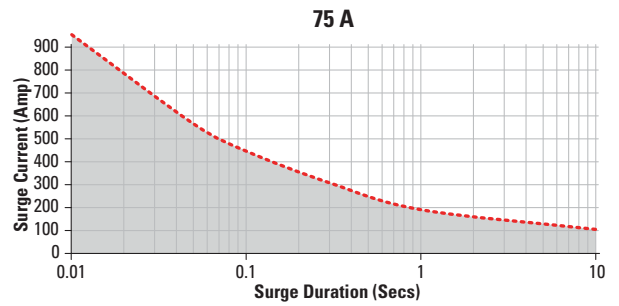
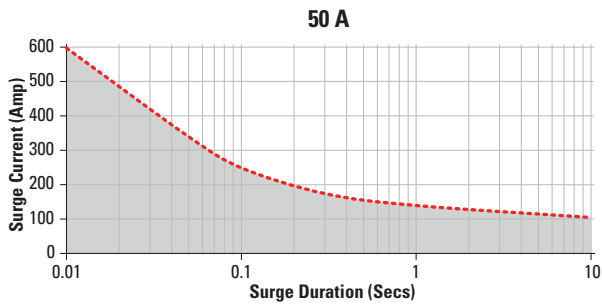
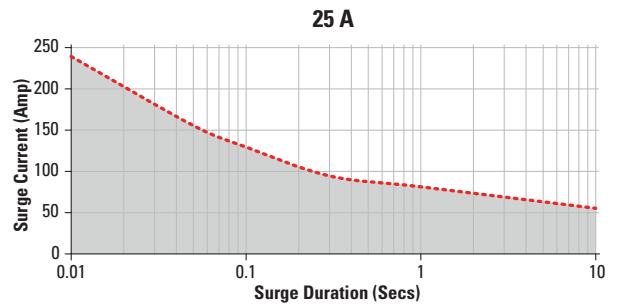
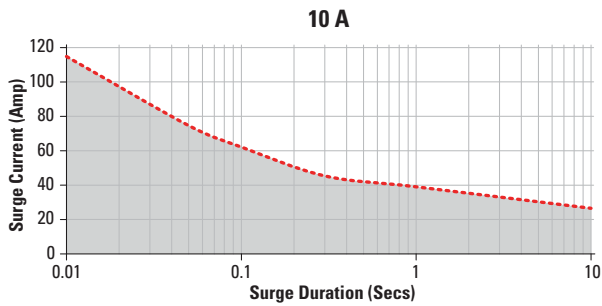
Quick Connect Termination ("F" Option) - Up to 25 Amp (1)



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

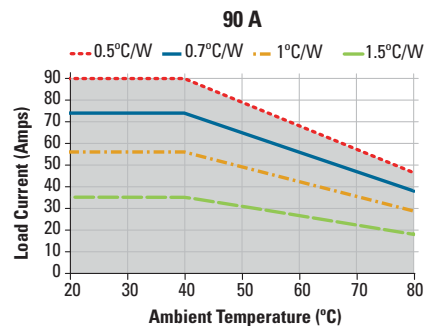
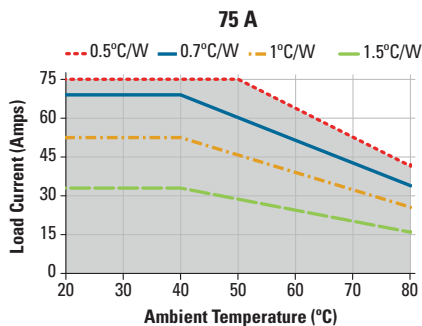
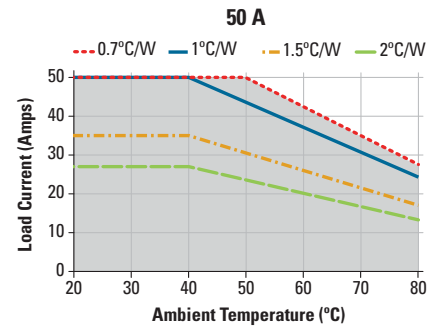
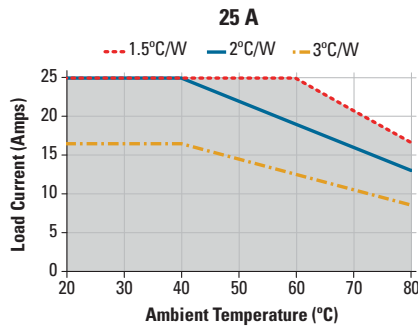
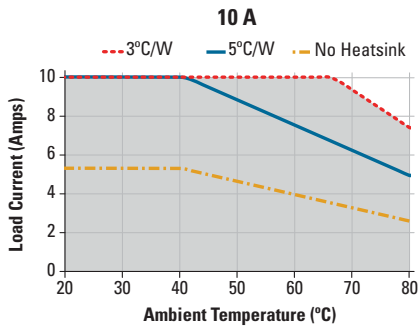


SURGE CURRENT INFORMATION



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



ACCESSORIES

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 [°C/W] | Lug Terminal | Thermal Pad |
|-------|--------------|--------------------|---------------------------|--------------|-------------|
| | | | | | |
| KS101 | HK1 | HS501DR | 3.0 | TRM1 | HSP-1 |
| | | HS301 / HS301DR | 2.5 | TRM6 | HSP-2 |
| | HK4 | 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.



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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