



H1 SERIES | H12WD

PANEL MOUNT



Features

- Ratings from 25A to 125A @ 48-660 VAC
- Low off-state leakage current (snubberless)
- SCR output for heavy industrial loads
- Zero Voltage or instantaneous turn-on outputs
- UL/CSA/VDE Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- DC control
- Direct bond copper substrate
- EMC Compliant to Level 3
- Direct power lead frame
- Epoxy free design

For **Generation 3** datasheet [click here](#)

PRODUCT SELECTION

Control Voltage	25A	50A	75A	90A	125A
4-32 VDC	H12WD4825	H12WD4850	H12WD4875	H12WD4890	H12WD48125

ORDERING OPTIONS

H1 - **2WD** - **48** - **25** - **K** - **P** - **G** - **H** - **-10**

Series **H1**

Transient Overvoltage **2WD**: 1200 Vpk

Operating Voltage **48**: 48-660 VAC

Rated Load Current **25**: 25 Amps **90**: 90 Amps
50: 50 Amps **125**: 125 Amps
75: 75 Amps

Termination **K**: Hex standoffs (2)

Overvoltage Protection **P**: Included (3)

Input Status LED **G**: Included

Thermal Pad **H**: Included

Switching Type **-10**: Instantaneous Turn-On (4)

Blank: Not Included

F: Quick Connect (Up to 50 Amps only) (1)

Blank: Zero Voltage Turn-On

— 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	25A	50A	75A	90A	125A
Operating Voltage (47-440Hz) [Vrms]	48-660	48-660	48-660	48-660	48-660
Transient Overvoltage [Vpk]	1200	1200	1200	1200	1200
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	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] (6)(3)	25	50	75	90	125
Minimum Load Current [mArms]	150	150	150	150	150
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	239/250	597/625	954/1000	1145/1200	1670/1750
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]	0.8	0.45	0.3	0.27	0.22
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz) [A ² sec]	285/259	1779/1621	4555/4150	6560/5976	13950/12709
Minimum Power Factor (at Maximum Load) (7)	0.5	0.5	0.5	0.5	0.5

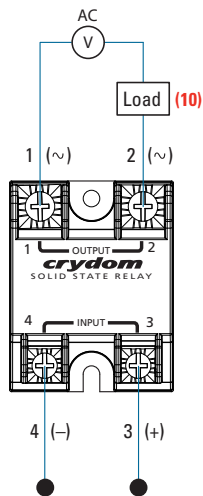
INPUT SPECIFICATIONS ⁽⁵⁾

Description	DC Control
Control Voltage Range	4-32 VDC
Minimum Turn-On Voltage (7)	4.0 VDC
Must Turn-Off Voltage	1.0 VDC
Maximum Reverse voltage	-32 VDC
Minimum Input Current	7 mADC
Maximum Input Current	12 mADC
Nominal Input Impedance	Current Regulated
Maximum Turn-On Time [msec] (8)	1/2 Cycle
Maximum Turn-Off Time [msec]	1/2 Cycle

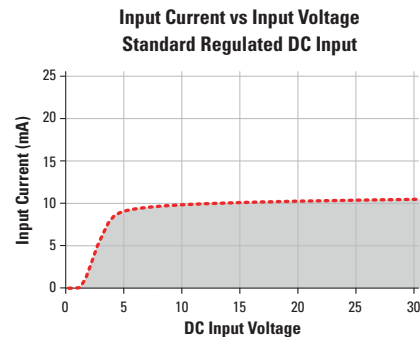
GENERAL SPECIFICATIONS ⁽⁵⁾

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 V DC)	10 ⁹ Ohm
Maximum Capacitance, Input/Output	8 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	94 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) (3)	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 Input Status Indicator	w/"G" option (green)
MTBF (Mean Time Between Failures) at 40°C ambient temperature (9)	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature (9)	7,210,376 hours (823 years)

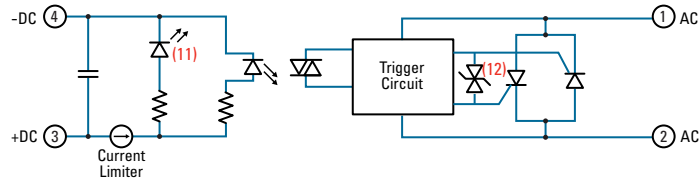
WIRING DIAGRAM



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]



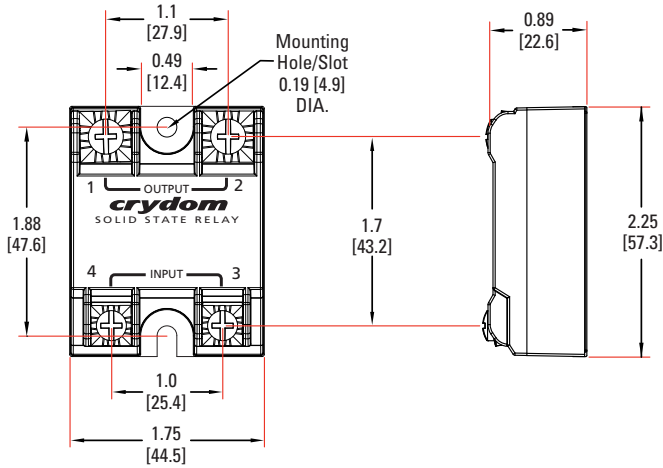
EQUIVALENT CIRCUIT BLOCK DIAGRAM



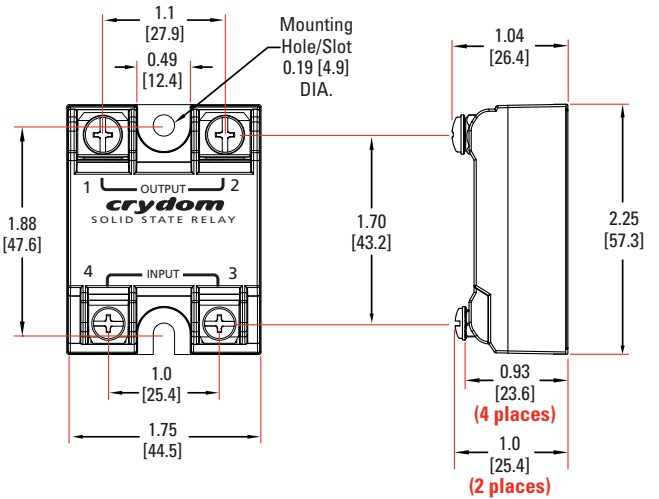
MECHANICAL SPECIFICATIONS (5)

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

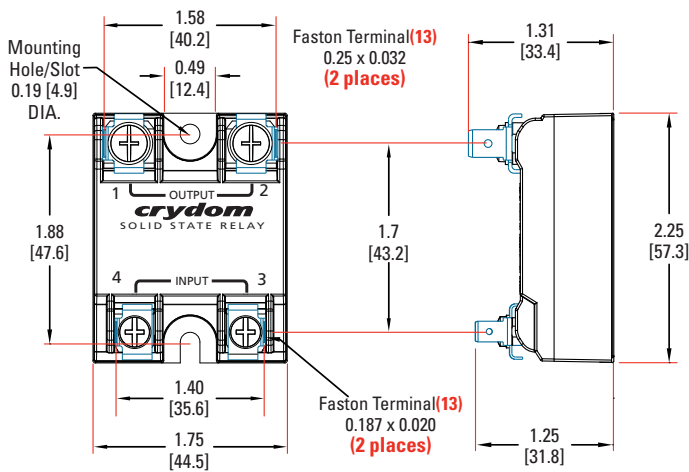
Screw Termination



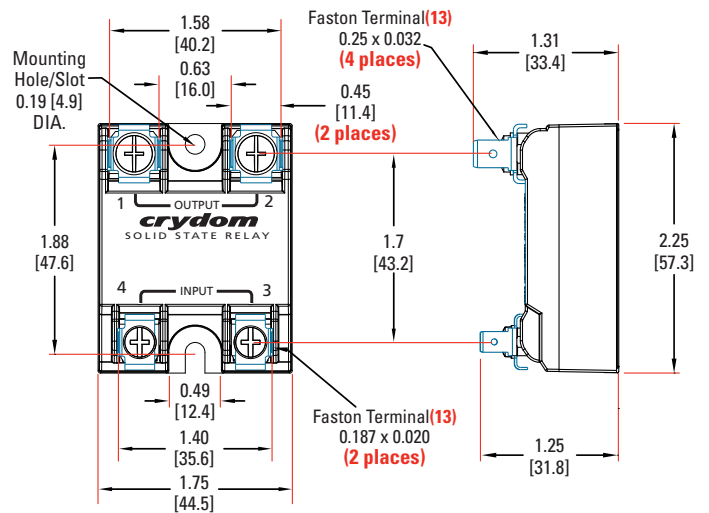
Hex Standoff Termination ("K" Option) (3)



Quick Connect Termination ("F" Option) - Up to 25 Amp (2)

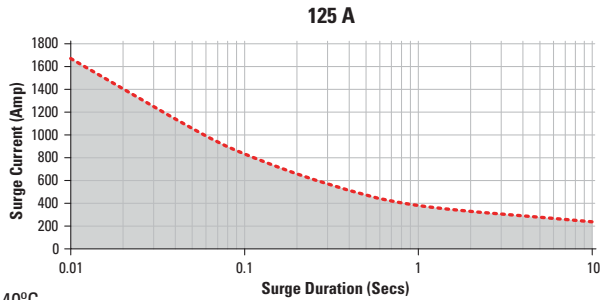
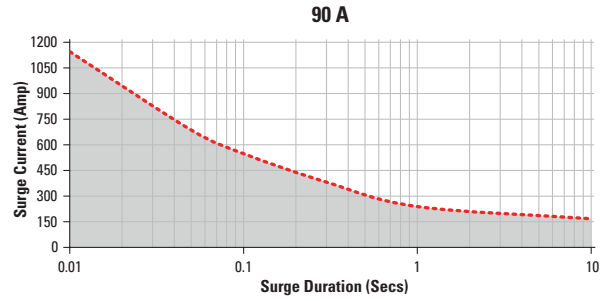
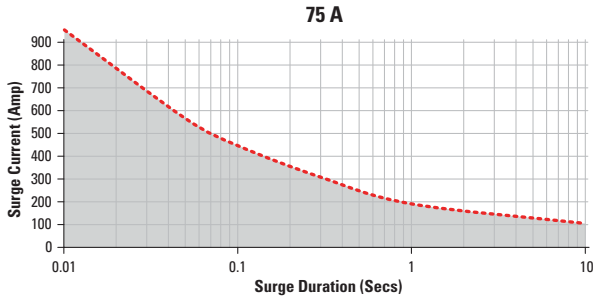
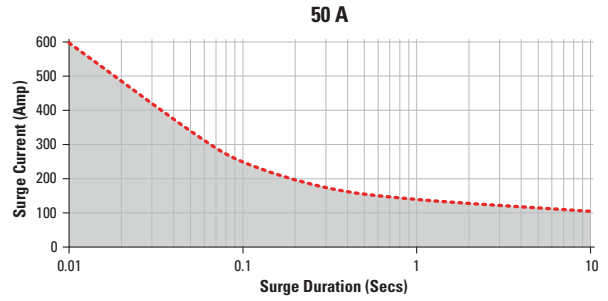
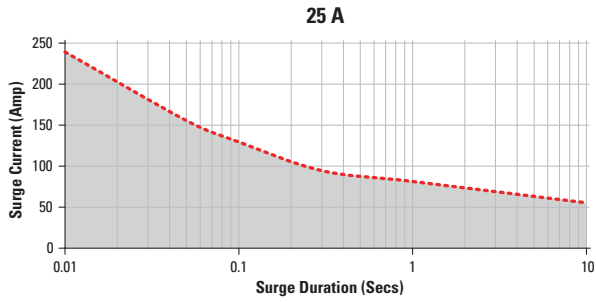


Quick Connect Termination ("F" Option) - Up to 50 Amp (2)





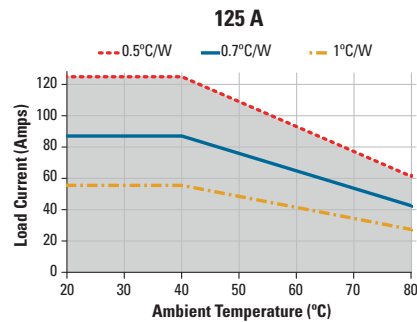
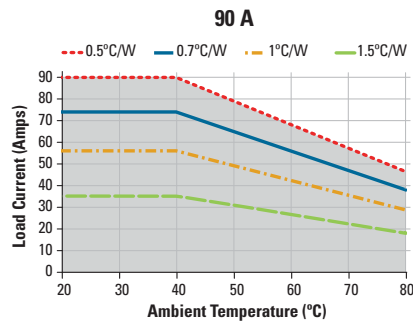
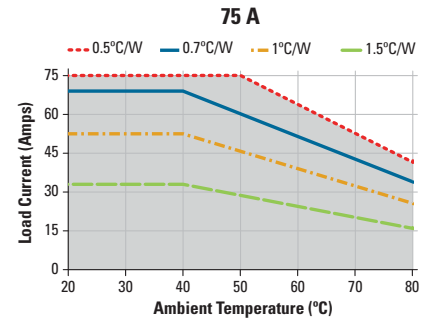
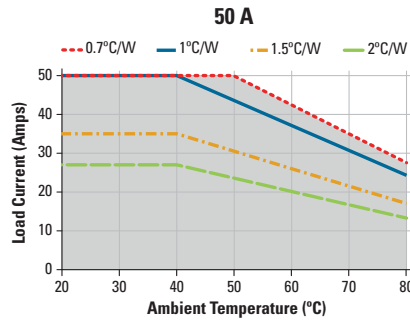
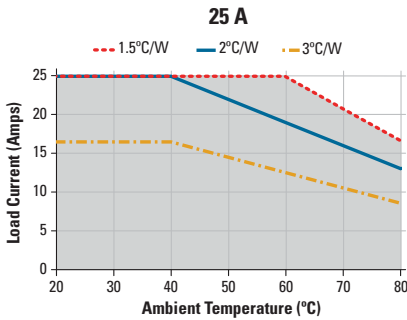
SURGE CURRENT INFORMATION



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

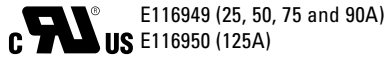


THERMAL DERATE INFORMATION



AGENCY APPROVALS

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



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 TMR1 lug terminals.

Recommended Accessories

Cover	Hardware Kit	Heat Sink		Lug Terminal	Thermal Pad
		Part No.	Thermal Resistance [°C/W]		
KS101	HK1	HS501DR	5.0	TRM1	HSP-1
		HS301 / HS301DR	3.0		
	HK4	HS251	2.5	TRM6	HSP-2
		HS202 / HS202DR	2.0		
		HS201 / HS201DR	2.0		
		HS172	1.7		
		HS151 / HS151DR	1.5		
		HS122 / HS122DR	1.2		
		HS103 / HS103DR	1.0		
		HS101	1.0		
		HS073	0.7		
		HS072	0.7		
		HS053	0.5		
		HS033	0.36		
HS023	0.25				

GENERAL NOTES

- (1) Single pair (up to 25A) Double pair* (50A model only). *Caution: User must connect to 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 900-1200Vpk, Min. power factor 0.7 or higher, 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) Heat sinking required, see derating curves.
- (7) Increase minimum voltage by 1V for operations from -20 to -40°C.
- (8) Turn-on time for Instantaneous turn-on versions is 0.02 msec.
- (9) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (10) Load can be wired to either SSR output terminal 1 or 2.
- (11) Elective Input Status LED, "G" option.
- (12) Elective Overvoltage Protection, "P" option.
- (13) 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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