



H1 SERIES | H16WD

PANEL MOUNT SOLID STATE RELAYS



Features

- Ratings from 25A to 90A @ 48-690 VAC
- 1600 Volts Blocking
- SCR output for heavy industrial loads
- Zero Voltage or instantaneous turn-on outputs
- UL 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

PRODUCT SELECTION

Control Voltage	25 A	50 A	75 A	90 A
4-32 VDC	H16WD4825	H16WD4850	H16WD4875	H16WD4890

SPECIFICATIONS

Output⁽⁴⁾

Description	25 A	50 A	75 A	90 A
Operating Voltage (47-440Hz) [Vrms]	48-690	48-690	48-690	48-690
Transient Overvoltage [Vpk]	1600	1600	1600	1600
Rated Load Current [Arms] (5)(2)	25	50	75	90
Rated Load Current {UL508 Motor Controller} [Arms] (5)	10	20	30	45
Minimum Load Current [mA rms]	150	150	150	150
Maximum Off-State Leakage Current @ Rated Voltage [mA rms]	1.0	1.0	1.0	1.0
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500	500	500
Maximum 1 Cycle Surge Current (50/60 Hz) [A pk]	239/250	597/625	954/1000	1145/1200
Maximum I ² t for Fusing (50/60 Hz) [A ² sec]	285/259	1779/1621	4555/4150	6560/5976
Thermal Resistance Junction to Case (Rjc) [°C/W]	0.8	0.45	0.3	0.27
Maximum On-State Voltage Drop @ Rated Current [V rms]	1.3	1.3	1.2	1.2
HP rating UL 508/IEC60947[HP (KW)]: 240 VAC	1.5 (1.1)	3 (2.2)	5 (3.7)	7.5 (5.6)
HP rating UL 508/IEC60947[HP (KW)]: 380 VAC	2 (1.5)	5 (3.7)	7.5 (5.6)	15 (11.2)
HP rating UL 508/IEC60947[HP (KW)]: 480 VAC	3 (2.2)	5 (3.7)	10 (7.4)	20 (14.9)
HP rating UL 508/IEC60947[HP (KW)]: 600 VAC	3 (2.2)	10 (7.4)	15 (11.2)	25 (18.6)
Minimum Power Factor (at Maximum Load)	0.5	0.5	0.5	0.5

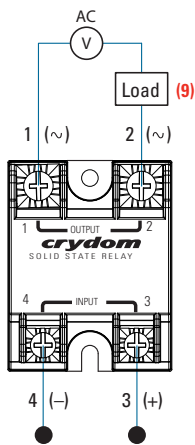
Input⁽⁴⁾

Description	DC Control
Control Voltage Range	4-32 VDC
Minimum Turn-On Voltage (6)	4.0 VDC
Must Turn-Off Voltage	1.0 VDC
Maximum Reverse Voltage	-32 VDC
Minimum Input Current @ Minimum Voltage (for on-state)	7mA
Maximum Input Current @ Maximum Voltage	12mA
Nominal Input Impedance	Current Regulated
Maximum Turn-On Time [msec] (7)	1/2 Cycle
Maximum Turn-Off Time [msec]	1/2 Cycle

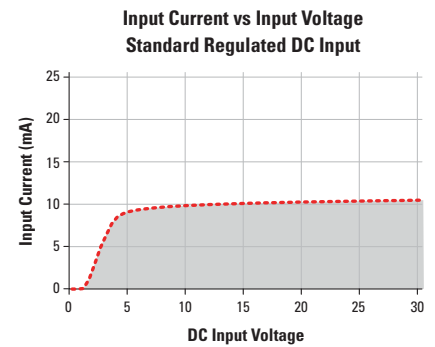
General ⁽⁴⁾

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60 Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 ⁹ Ohm
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-30 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.6 oz (74.9 g)
Housing Material	UL 94 V-0
SSR Mounting Torque Range [lb-in/Nm]	18-20 (2-2.2)
Baseplate Material	Aluminum
Input Terminal Screw Torque Range [lb-in/Nm]	13-15 / 1.5-1.7
Output Terminal Screw Torque Range [lb-in/Nm]	18-20 (2-2.2)
SSR Mounting Screw Torque Range [lb-in/Nm]	18-20 / 2.0-2.2
Input/Load Terminal Screw Torque Range [lb-in/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 Input Status Indicator	w/"G" option (green)
MTBF (Mean Time Between Failures) at 40°C ambient temperature ⁽⁸⁾	11,641,553 hours (1,328 years)
MTBF (Mean Time Between Failures) at 60°C ambient temperature ⁽⁸⁾	7,210,376 hours (823 years)

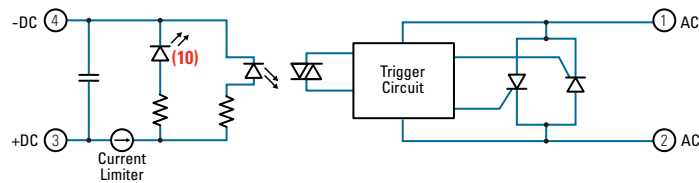
WIRING DIAGRAM



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]



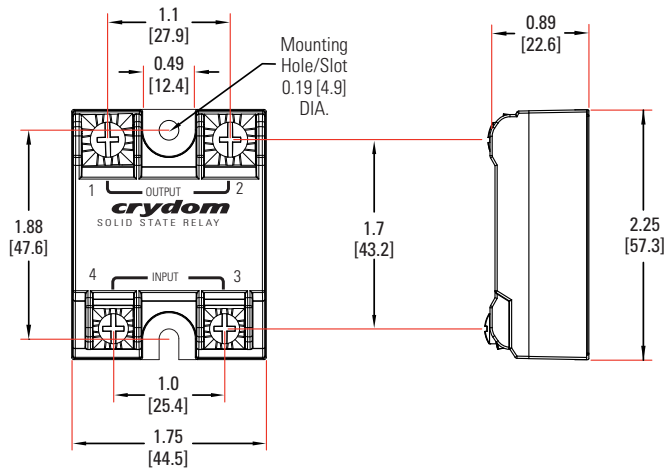
EQUIVALENT CIRCUIT BLOCK DIAGRAM



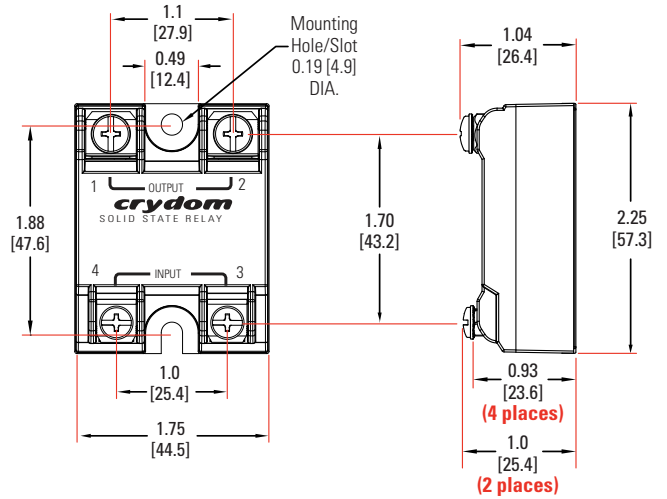
MECHANICAL SPECIFICATIONS (4)

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

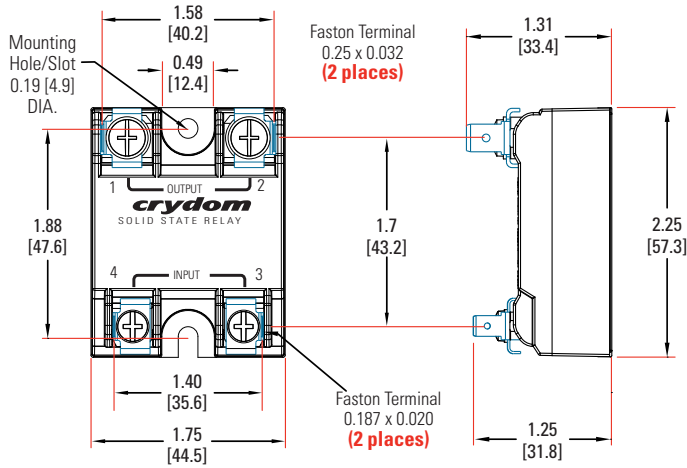
Screw Termination



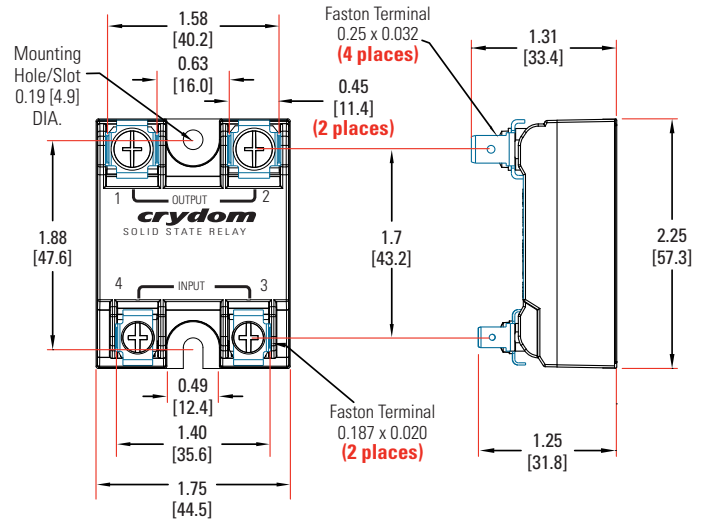
Hex Standoff Termination ("K" Option) (2)



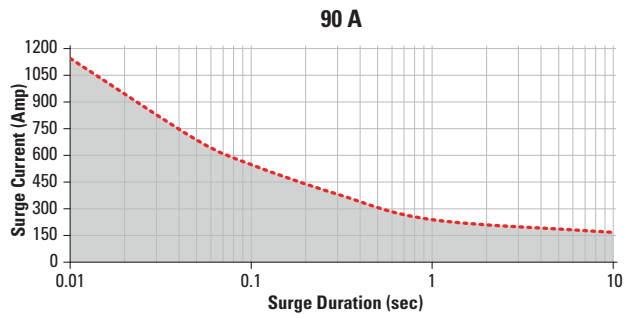
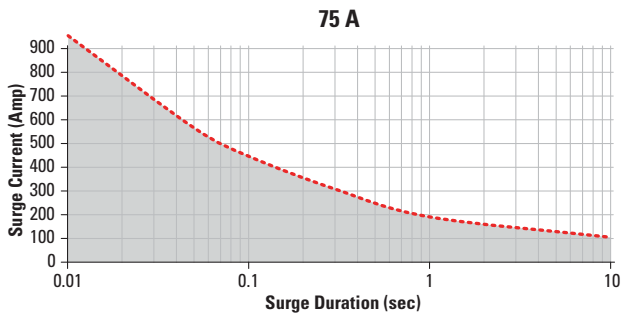
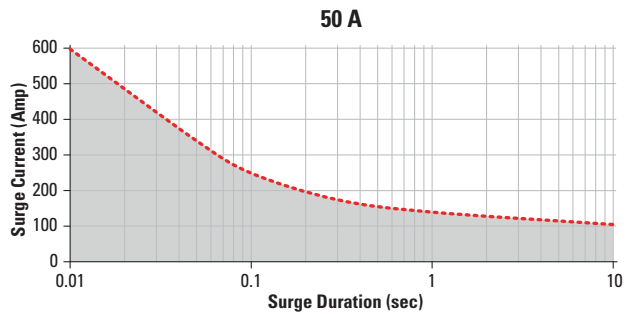
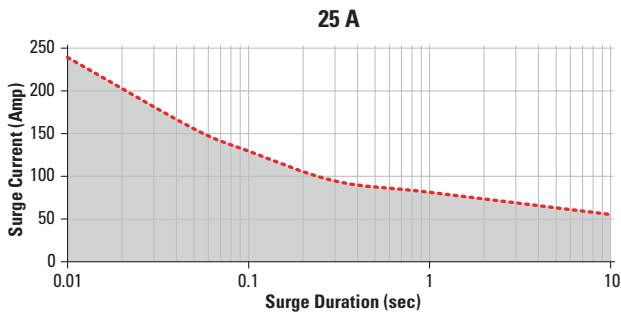
Quick Connect Termination ("F" Option) - Up to 25 Amp (1)



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

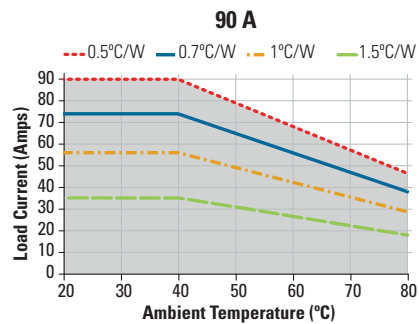
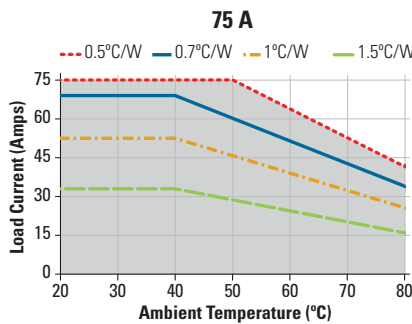
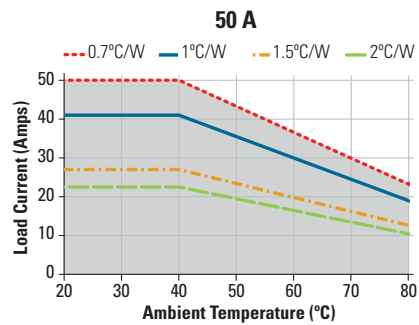
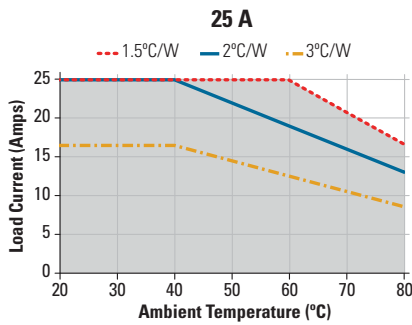


SURGE CURRENT INFORMATION



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

THERMAL DERATE INFORMATION

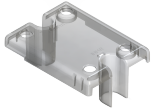


ACCESORIES

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	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		

ORDERING OPTIONS

Example: H16WD6025KGGH-10

Series	H1	6WD	60	25	K	G	H	-10
H1								
Transient Overvoltage								
6WD: 1600 Vpk								
Operating Voltage								
60: 48-690 VAC								
Rated Load Current								
25: 25 Amps	75: 75 Amps							
50: 50 Amps	90: 90 Amps							
Termination								
Blank: Screw								
F: Quick Connect (Up to 50 Amps only) (1)								
K: Hex standoffs (2)								
Input Status LED								
Blank: Not Included								
G: Included								
Thermal Pad								
Blank: Not Included								
H: Included								
Switching Mode								
Blank: Zero Voltage Turn-On								
-10: Instantaneous Turn-On (3)								

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

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

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 Technical Support.
- (3) Instantaneous turn-on version is not recommended for capacitive loads. Use zero turn-on only.
- (4) All parameters at 25°C unless otherwise specified.
- (5) Heat sinking required, see derating curves.
- (6) Increase minimum voltage by 1 V for operations from -20 to -30°C.
- (7) Turn-on time for Instantaneous turn-on versions is 0.02 msec.
- (8) All parameters at 50% power rating and 100% duty cycle
- (9) Load can be wired to either SSR output terminal 1 or 2.
- (10) Elective Input Status LED, "G" option.

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



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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