



SERIES 1T | 120 VAC

PANEL MOUNT



Features

- Ratings from 10A to 40A @ 24-140 VAC
- SCR output for heavy industrial loads
- Zero voltage or instantaneous turn-on outputs
- UL/CSA/TUV Approved, CE Compliant to EN60950-1
- Improved SEMS screw and washer
- Redesigned housing with anti-rotation barriers
- AC or DC control
- Direct bond copper substrate
- Direct power lead frame
- Epoxy free design

PRODUCT SELECTION

Control Voltage	10A	25A	40A
3-32 VDC	D1210T	D1225T	D1240T
90-280 VAC	A1210T	A1225T	A1240T
18-36 VAC	A1210ET	A1225ET	A1240ET

ORDERING OPTIONS

A - **12** - **10** - **E** - **K** - **P** - **G** - **H** - **T** - **-10** - **-B**

Control Voltage

A: 90-280 VAC
D: 3-32 VDC
AxxxxE: 18-36 VAC

Operating Voltage

12: 24-140 VAC

Rated Load Current

10: 10 Amps (1)
25: 25 Amps
40: 40 Amps (2)

Termination

Blank: Screw
F: Quick Connect (Up to 50 Amps only)
K: Hex standoffs (3)

Overvoltage Protection

Blank: Not Included
P: Included

Input Status LED

Blank: Not Included
G: Included

Thermal Pad

Blank: Not Included
H: Included

Trigger Circuit

T: Phototransistor (Not needed with -B suffix, included as standard)

Switching Type

Blank: Zero Voltage Turn-On
-10: Instantaneous Turn-On (4)

Output Type

-B: Normally Closed (Not available with -10 option)

— 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	10A	25A	40A
Operating Voltage (47-440Hz) [Vrms]	24-140	24-140	24-140
Transient Overvoltage [Vpk]	600	600	600
Maximum Off-State Leakage Current @ Rated Voltage [mArms]	8	8	8
Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]	500	500	500
Maximum Load Current [Arms] (2)(6)	10	25	40
Minimum Load Current [mArms]	40	40	40
Maximum 1 Cycle Surge Current (50/60Hz) [Apk]	115/120	239/250	597/625
Maximum On-State Voltage Drop @ Rated Current [Vrms] (7)	1.15	1.15	1.15
Thermal Resistance Junction to Case (Rjc) [°C/W]	1.03	0.8	0.5
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz) [A ² sec]	66/60	285/259	1770/1629
Minimum Power Factor (at Maximum Load)	0.5	0.5	0.5

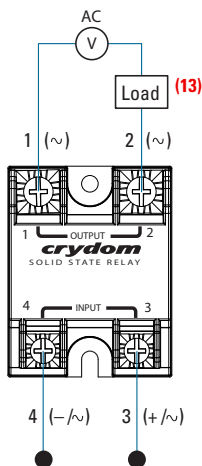
INPUT SPECIFICATIONS ⁽⁵⁾

Description	D12xxT	A12xxT	A12xxET
Control Voltage Range	3-32 VDC	90-280 Vrms	18-36 Vrms
Minimum Turn-On Voltage (8)	3.0 VDC (9)	90 Vrms	18 Vrms
Must Turn-Off Voltage (10)	1.0 VDC	10 Vrms	4 Vrms
Minimum Input Current [mA]	3.4	2	2
Maximum Input Current [mA]	24	4.9	4
Nominal Input Impedance [Ohms]	1.5K	60K	9K
Maximum Turn-On Time [msec]	1/2 Cycle (11)	10	10
Maximum Turn-Off Time [msec]	1/2 Cycle	40	40

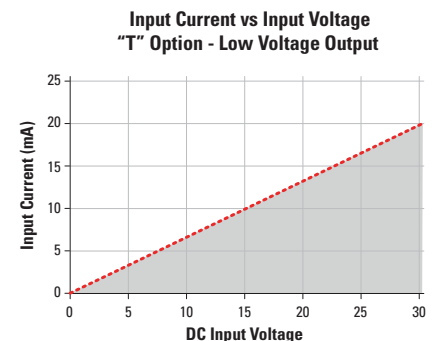
GENERAL SPECIFICATIONS ⁽⁵⁾

Description	Parameters
Dielectric Strength, Input/Output/Base (50/60Hz)	4000 Vrms
Minimum Insulation Resistance (@ 500 VDC)	10 ⁹ Ohm
Maximum Capacitance, Input/Output	8 pF
Ambient Operating Temperature Range	-40 to 80 °C
Ambient Storage Temperature Range	-40 to 125 °C
Weight (typical)	2.6 oz (74.9g)
Housing Material	UL 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) (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 (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 DIAGRAMS

Diagram: A12xxT, A12xxET

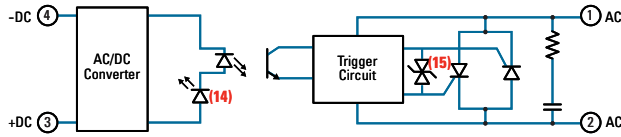
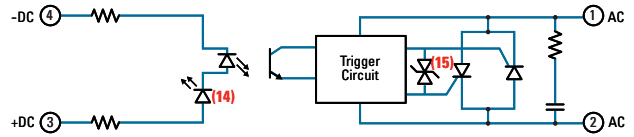


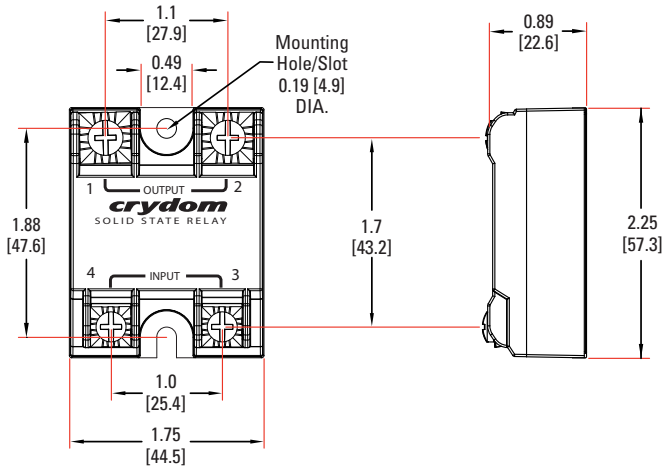
Diagram: D12xxT



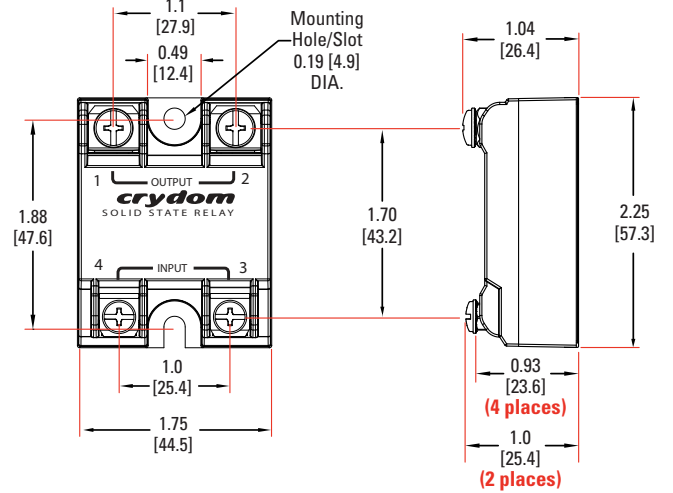
MECHANICAL SPECIFICATIONS (5)

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

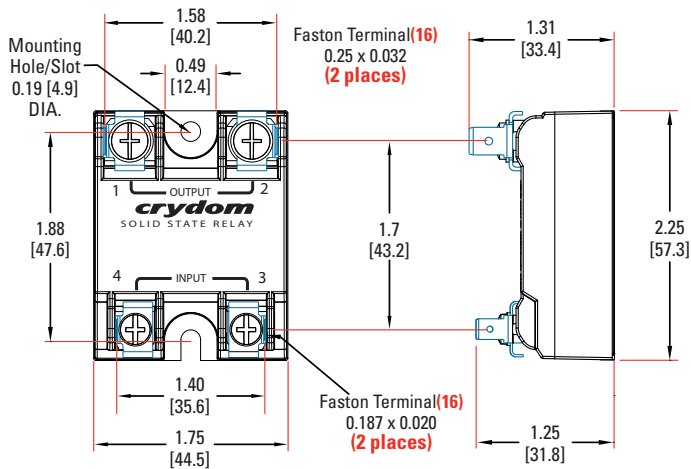
Screw Termination



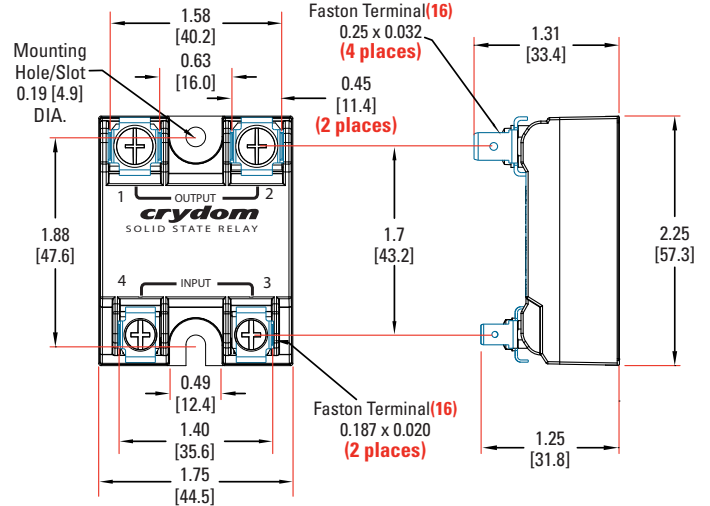
Hex Standoff Termination ("K" Option) (2)



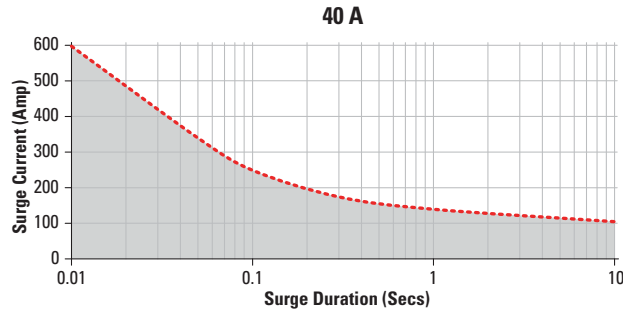
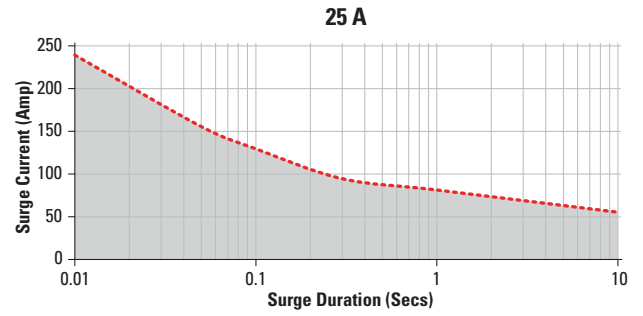
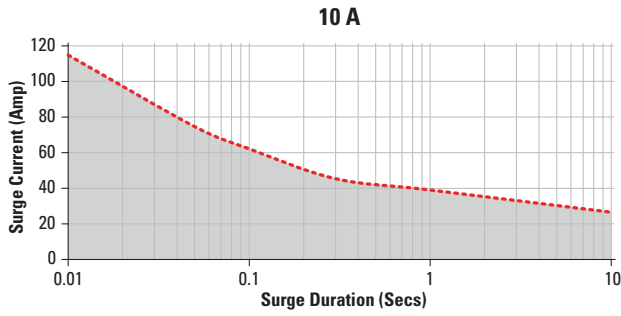
Quick Connect Termination ("F" Option) - Up to 25 Amp (1)



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

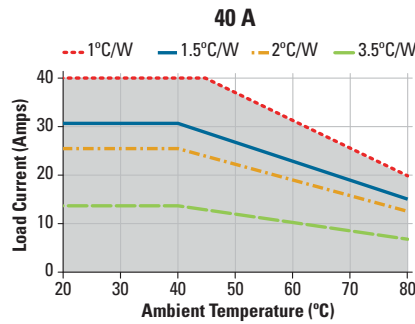
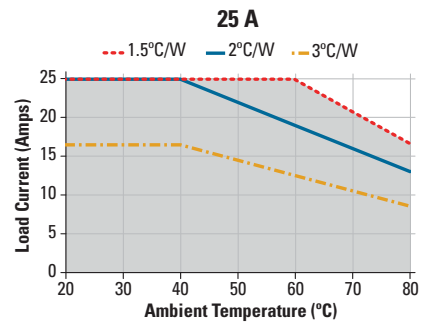
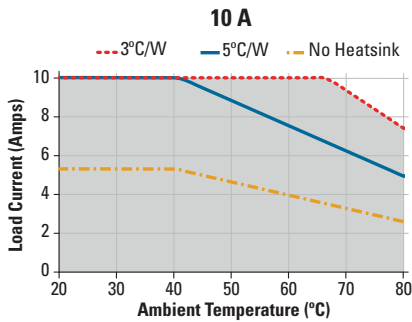


SURGE CURRENT INFORMATION



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

THERMAL DERATE INFORMATION



AGENCY APPROVALS AND CERTIFICATIONS

EN60950 : Meets the requirements of sections 1.5: 1.7: 2.9: 2.10.5.3: 4.2: 4.5: 4.7:
 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 0.75 mm Amplitude over 10-55 Hz
 IEC 60068-2-27 : Shock Resistance 15g/11ms



ACCESSORIES

New 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		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* (up to 50A). *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, Min., 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) For 40mA minimum current, the voltage drop increases over maximum rated.
- (8) Maximum turn-on voltage for -B option is: 1VDC for DC control, 10Vrms for AC control, and 4Vrms for E control range.
- (9) For relays with option "G" minimum control voltage is 4.5VDC.
- (10) Must turn-off voltage for -B option is: 3VDC for DC control, 90Vrms for AC control, and 18Vrms for E control range.
- (11) Turn-on time for Instantaneous turn-on versions is 0.02 msec (DC Control Models).
- (12) All parameters at 50% power rating and 100% duty cycle (contact Crydom tech support for detailed report).
- (13) Load can be wired to either SSR output terminal 1 or 2.
- (14) Elective Input Status LED, "G" option.
- (15) Elective Overvoltage Protection, "P" 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.

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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

Europe, Middle East & Africa

+44 (1202) 416170
ssr-info.eu@sensata.com

Asia Pacific

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