



## SERIES 1T | 480 VAC

PANEL MOUNT



### Features

- Ratings from 25A to 90A @ 48-530 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 | 25 A   | 50 A   | 75 A   | 90 A   |
|-----------------|--------|--------|--------|--------|
| 3-32 VDC        | D4825T | D4850T | D4875T | D4890T |
| 90-280 VAC      | A4825T | A4850T | A4875T | A4890T |



### ORDERING OPTIONS

**A** - **48** - **25** - **K** - **H** - **T** - **-10**

**Control Voltage**

**A:** 90-280 VAC  
**D:** 3-32 VDC

**Operating Voltage**

**48:** 48-530 VAC

**Rated Load Current**

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

**Termination**

**Blank:** Screw  
**F:** Quick Connect (Up to 50 Amps only) <sup>(1)</sup>  
**K:** Hex standoffs <sup>(2)</sup>

**Thermal Pad**

**Blank:** Not Included  
**H:** Included

**Trigger Circuit**

**T:** Phototransistor

**Switching Type**

**Blank:** Zero Voltage Turn-On  
**-10:** Instantaneous Turn-On <sup>(3)</sup>

☐ 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 <sup>(4)</sup>

| Description  | 25 A    | 50 A      | 75 A      | 90 A      |
|--|---------|-----------|-----------|-----------|
| Operating Voltage (47-63Hz) [Vrms]   | 48-530  | 48-530    | 48-530    | 48-530    |
| Transient Overvoltage [Vpk]  | 1200    | 1200      | 1200      | 1200      |
| Maximum Off-State Leakage Current @ Rated Voltage [mArms]                    | 10      | 10        | 10        | 10        |
| Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec]                     | 500     | 500       | 500       | 500       |
| Maximum Load Current [Arms] (2)(5)   | 25      | 50        | 75        | 90        |
| Minimum Load Current [mArms]   | 40      | 40        | 40        | 40        |
| Maximum 1 Cycle Surge Current (50/60Hz) [Apk]                                | 239/250 | 597/625   | 954/1000  | 1145/1200 |
| Maximum On-State Voltage Drop @ Rated Current [Vrms] (6)                     | 1.15    | 1.15      | 1.15      | 1.15      |
| Thermal Resistance Junction to Case (Rjc) [°C/W]                             | 0.8     | 0.45      | 0.3       | 0.27      |
| Maximum 1/2 Cycle I <sup>2</sup> t for Fusing (50/60Hz) [A <sup>2</sup> sec] | 285/259 | 1779/1621 | 4555/4150 | 6560/5976 |
| Minimum Power Factor (at Maximum Load)                                       | 0.5     | 0.5       | 0.5       | 0.5       |

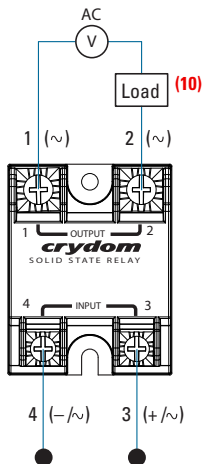
## INPUT SPECIFICATIONS <sup>(4)</sup>

| Description                    | D48xxT            | A48xxT      |
|--------------------------------|-------------------|-------------|
| Control Voltage Range          | 3-32 VDC          | 90-280 Vrms |
| Minimum Turn-On Voltage        | 3.0 VDC (7)       | 90 Vrms     |
| Must Turn-Off Voltage          | 1.0 VDC           | 10 Vrms     |
| Minimum Input Current [mA]     | 2                 | 2           |
| Maximum Input Current [mA]     | 2.5               | 4.9         |
| Nominal Input Impedance [Ohms] | Current Regulated | 60K         |
| Maximum Turn-On Time [msec]    | 1/2 Cycle (8)     | 10          |
| Maximum Turn-Off Time [msec]   | 1/2 Cycle         | 40          |

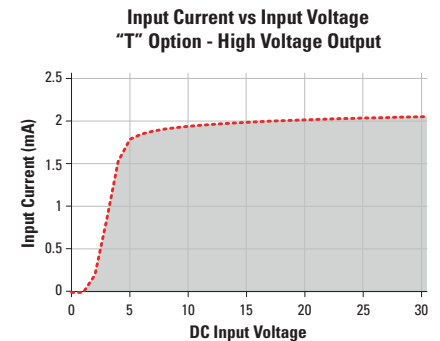
## GENERAL SPECIFICATIONS <sup>(4)</sup>

| Description   | Parameters                     |
|---|--------------------------------|
| Dielectric Strength, Input/Output/Base (50/60Hz)                  | 4000 Vrms                      |
| Minimum Insulation Resistance (@ 500 VDC)                         | 10 <sup>9</sup> 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             |
| 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 <sup>2</sup> ) / 0.2 [minimum]     | 10 [44.5]                      |
|                        | 2 x 12 AWG (3.3 mm <sup>2</sup> ) / 3.3 [maximum] | 90 [400]                       |
| Output                 | 20 AWG (0.5 mm <sup>2</sup> ) / 0.518 [minimum]   | 30 [133]                       |
|                        | 2 x 10 AWG (5.3 mm <sup>2</sup> ) / 5.3           | 110 [490]                      |
|                        | 2 x 8 AWG (8.4 mm <sup>2</sup> ) / 8.4 [maximum]  | 90 [400]                       |





## EQUIVALENT CIRCUIT BLOCK DIAGRAMS

Diagram: A48xxT

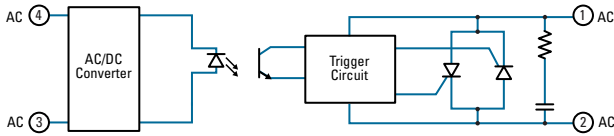
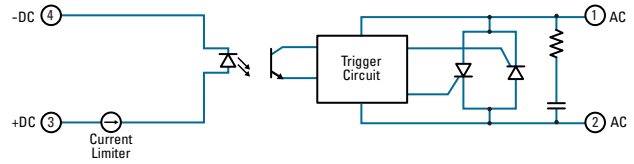


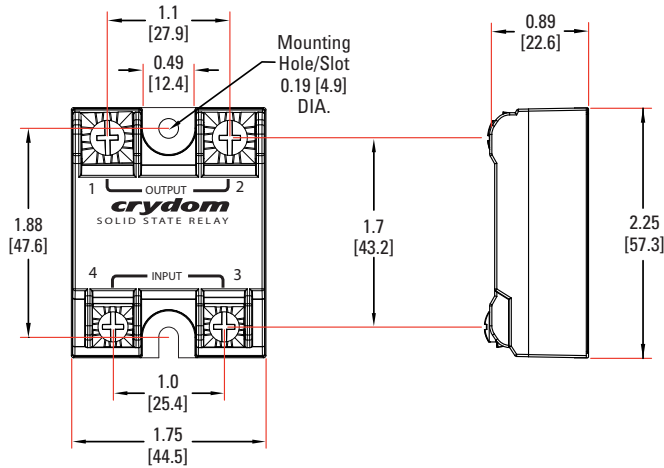
Diagram: D48xxT



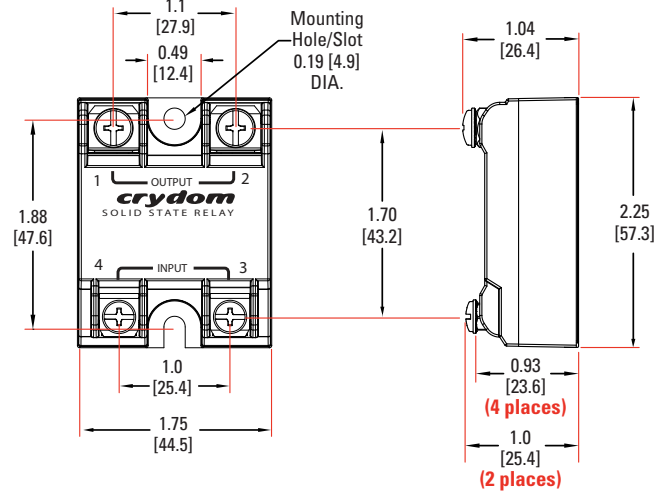
## MECHANICAL SPECIFICATIONS (4)

Tolerances:  $\pm 0.02$  in / 0.5 mm  
All dimensions are in: inches [millimeters]

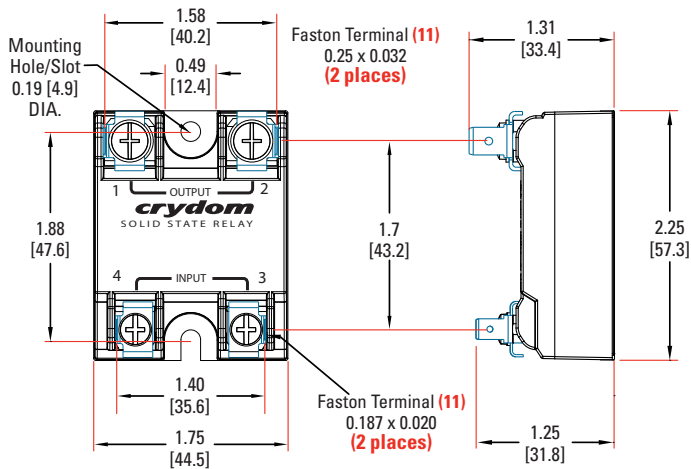
Screw Termination



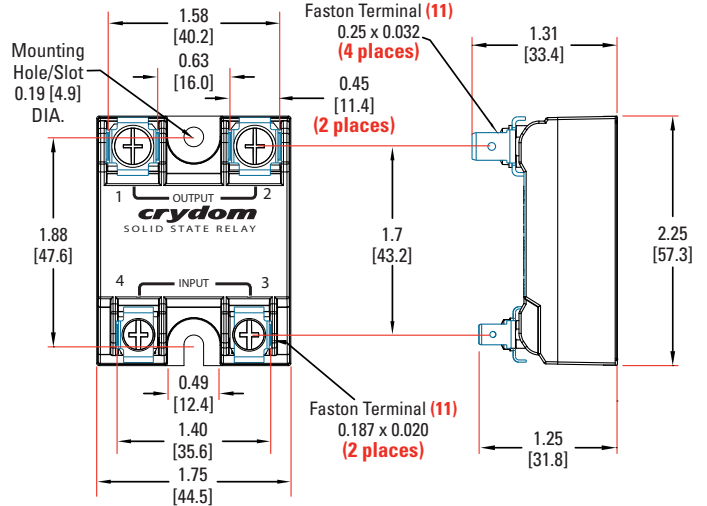
Hex Standoff Termination ("K" Option) (2)



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

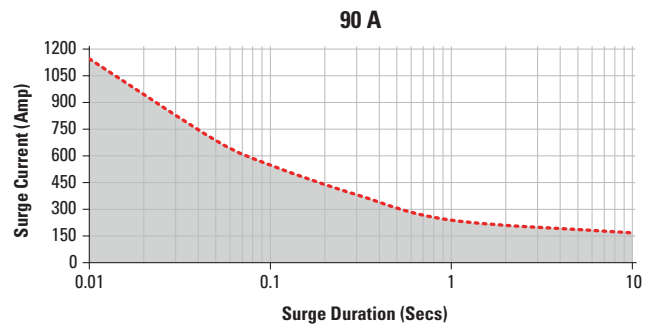
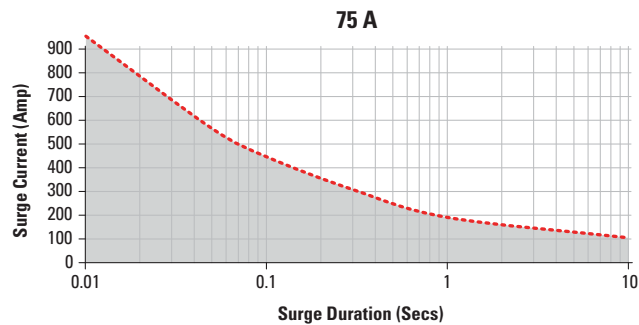
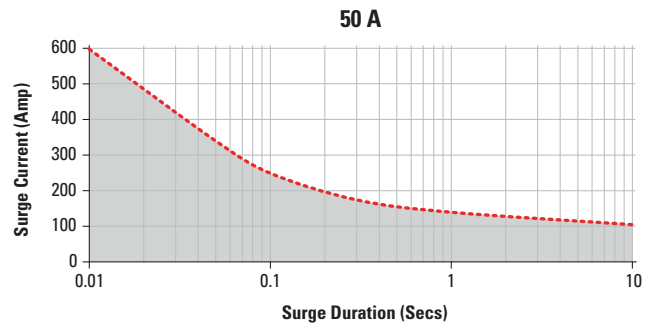
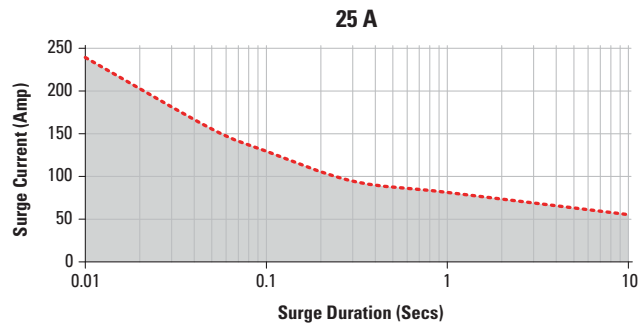


Quick Connect Termination ("F" Option) - Up to 50 Amp (1)





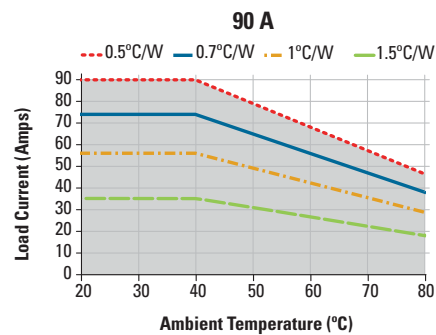
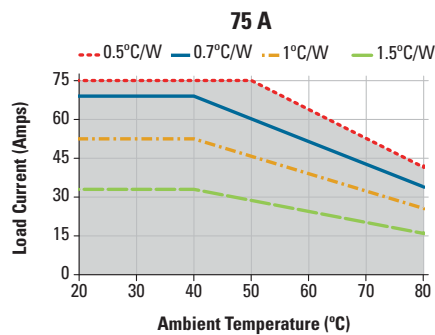
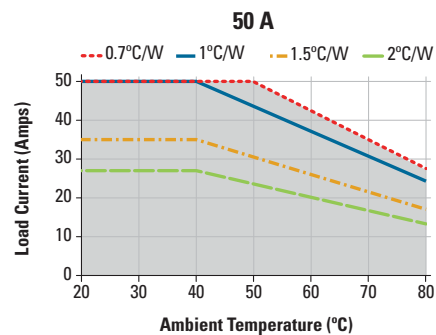
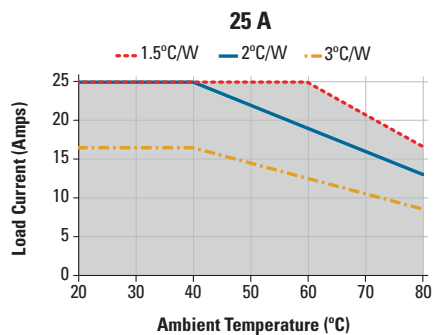
## SURGE CURRENT INFORMATION



Non repetitive peak surge current at  $T_j$  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

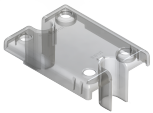


## ACCESSORIES

### 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 TMR1 lug terminals.

| Recommended Accessories   |  |   |                              |  |   |
|---|--|---|------------------------------|--|---|
|  Cover |  Hardware Kit |  Heat Sink | Thermal Resistance<br>[°C/W] |  Lug Terminal |  Thermal Pad |
|   |  | Part No.  |                              |  |   |
| KS101   | HK1<br>HK4   | HS501DR   | 5.0                          | TRM1<br>TRM6   | HSP-1   |
|   |  | HS301 / HS301DR   | 3.0                          |  | HSP-2   |
|   |  | HS251   | 2.5                          |  |   |
|   |  | 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 25 A) Double pair\* (50 A 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) 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) For 40mA minimum current, the voltage drop increases over maximum rated.
- (7) For relays with option "G" minimum control voltage is 4.5 VDC.
- (8) Turn-on time for Instantaneous turn-on versions is 0.02 msec (DC Control Models).
- (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) 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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