

**crydom**<sup>TM</sup>**Series 1****10-90Amp • 120/240 Vac - AC OUTPUT**

- **Zero Voltage and Random Turn-On Switching**
- **Panel Mount**
- **600V Transient Capability**
- **Internal Snubber**
- **110 & 125A Models Available**
- **Integrated Overvoltage Protection by Automatic Self Turn-On (Suffix P)**

Featuring state-of-the-art Surface Mount Technology, these SPST-NO relays deliver proven reliability in the most demanding applications. Output consists of an SCR AC switch and is available in zero-cross, random turn-on (phase controllable) and normally closed (Form B) versions with either AC or DC input (coil) control. Manufactured in Crydom's ISO 9001 Certified facility for optimum product performance and reliability.

MODEL NUMBERS	AC CONTROL	A1210	A1210	A1240	A2410	A2425	A2450	A2475	A2490
	DC CONTROL	D1210	D1225	D1240	D2410	D2425	D2450	D2475	D2490
<b>OUTPUT SPECIFICATIONS</b> ①									
Operating Voltage (47-63 Hz) [Vrms]		24-140	24-140	24-140	24-280	24-280	24-280	24-280	24-280
Max. Load Current ③ [Arms]		10	25	40	10	25	50	75	90
Min. Load Current, [mArms]		40	40	40	40	40	40	40	40
Transient Overvoltage [Vpk]		400	400	400	600	600	600	600	600
Max. Surge Current, (16.6ms) [Apk]		120	250	625	120	250	625	1000	1200
Max. On-State Voltage Drop @ Rated Current [Vpk]		1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Thermal Resistance Junction to Case (R <sub>qJC</sub> ) [°C/W]		1.48	1.02	0.63	1.48	1.02	0.63	0.31	0.28
Maximum I <sup>2</sup> t for Fusing, (8.3 msec.) [A <sup>2</sup> sec]		60	260	1620	60	260	1620	4150	6000
Max. Off-State Leakage Current @ Rated Voltage [mArms]		8	8	8	10	10	10	10	10
Min. Off-State dv/dt @ Max. Rated Voltage [V/μsec] ②		500	500	500	500	500	500	500	500
Max. Turn-On Time ④		1/2 Cycle (DC Control), 10.0 msec (AC Control)							
Max. Turn-Off Time		1/2 Cycle (DC Control), 40.0 msec (AC Control)							
Power Factor (Min.) with Max. Load		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

**INPUT SPECIFICATIONS** ①

	<del>DC CONTROL</del>	AC CONTROL	<del>24V AC/DC CONTROL</del> (E-SUFFIX)
Control Voltage Range	<del>3-32 Vdc</del>	90-280 Vrms (60Hz)	<del>18-36 Vrms/Vdc</del>
Max. Reverse Voltage	<del>32 Vdc</del>	—	—
Max. Turn-On Voltage	<del>3.0 Vdc</del>	90 Vrms	<del>18 Vrms/Vdc</del>
Min. Turn-Off Voltage	<del>1.0 Vdc</del>	10 Vrms	<del>4.0 Vrms/Vdc</del>
Nominal Input Impedance	<del>1500 Ohms</del>	60K Ohms	<del>9.0K Ohms</del>
Typical Input Current	<del>3.4mA @ 5 Vdc, 20mA @ 28Vdc</del>	2mA @ 120 Vrms, 4mA @ 240 Vrms	<del>3mA @ 24 V</del>

**GENERAL NOTES**

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- ① All parameters at 25° C unless otherwise specified.  
 ② Off-State dv/dt test method per EIA/NARM standard RS-443, paragraph 13.11.1  
 ③ Heat sinking required, for derating curves see page 3.  
 ④ Turn-on time for random turn-on versions is 0.02 msec (DC Control Models).

For recommended applications and more information contact:  
**USA:** Sales Support (877) 502-5500 **Tech Support** (877) 702-7700 FAX (619) 710-8540  
 Crydom Inc., 2320 Paseo de las Americas, Ste. 201, San Diego, CA 92154  
**Email:** sales@crydom.com **WEB SITE:** http://www.crydom.com  
**UK:** +44 (0)1202 606030 • **FAX** +44 (0)1202 606035 Crydom SSR Ltd., Arena Business Centre,  
 Holyrood Close, Poole, Dorset BH17 7FJ, Email: intsales@crydom.com.  
**GERMANY:** +49 (0)180 3000 506



### GENERAL SPECIFICATIONS

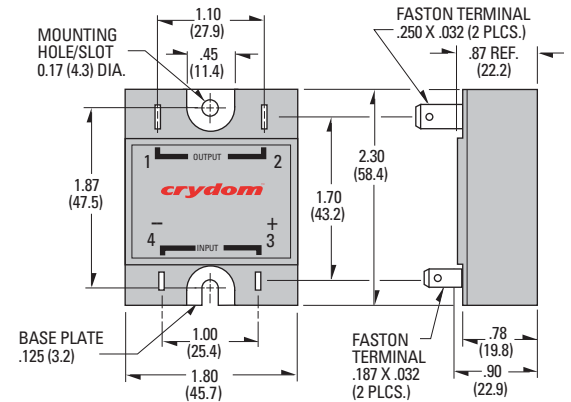
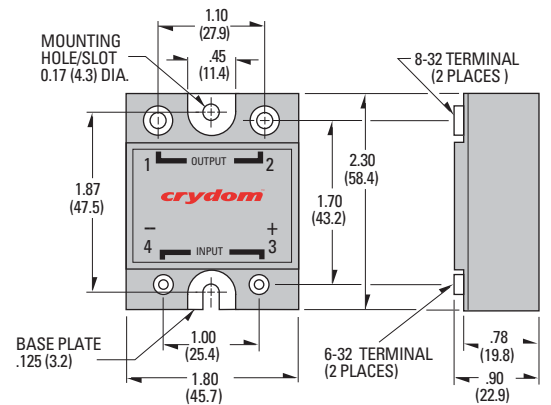
Dielectric Strength 50/60Hz Input/Output/Base	4000 Vrms
Insulation Resistance (Min.) @ 500 Vdc	10 <sup>9</sup> Ohm
Max. Capacitance Input/Output	8 pF
Ambient Operating Temperature Range	-40 to 80°C
Ambient Storage Temperature Range	-40 to 125°C

### MECHANICAL SPECIFICATIONS

Weight: (typical)	3.0 oz. (86.5g)
Encapsulation:	Thermally Conductive Epoxy
Terminals:	Screws and Saddle Clamps Furnished, Unmounted

### AVAILABLE OPTIONS

- ~~**B** Normally Closed (Form B)  
Example: **D2450-B, A2450-B**~~
- E** 24V AC/DC Input  
Example: **A2450E**
- F** Faston Terminals (Up to 50A Models)  
Example: **D1225F**
- G** Input Status LED:  
Example: **D2450G**  
~~Note: Control Voltage Range 4.5-32Vdc for DC Control Models.~~
- P** Internal Overvoltage Protection:  
Relay Will Self Trigger Between  
450-600 Vpk. Not Suitable For Capacitive Loads.  
Not Available with ~~B~~ Option  
Example: **D2425P**
- 4D** 400 Hz Operation  
10-50 Amp Models Only  
Zero Cross Switching Only  
Example: **4D2450**
- ~~**10** Random Turn On (AC & DC Control)  
Phase Controllable (DC Control)  
Example: **D2450-10**~~
- H** Heat Transfer Pad (Attached)  
Example: **D2450H**



**Screw Torque Requirements:**  
6-32 Screws - 10 in. lbs. (1.1Nm),  
8-32 and 10-32 Screws - 20in. lbs. (2.2Nm)  
(Screws dry without grease.)

**Fastons:**  
Single pair (up to 25A)  
Double pair\* (up to 50A).  
**\*Caution: User must connect to both pairs**

Ordering System: Combination of the suffixes should be made in the following order:  
**EFPG-10.**  
Example: **A2450EFPG-10**

**Crydom Heat Sinks** offer excellent thermal management and are perfectly matched to the load current ratings of Crydom panel mount relays. Request Crydom's Heat Sink specification sheet for all the details.

All dimensions are in inches (millimeters)

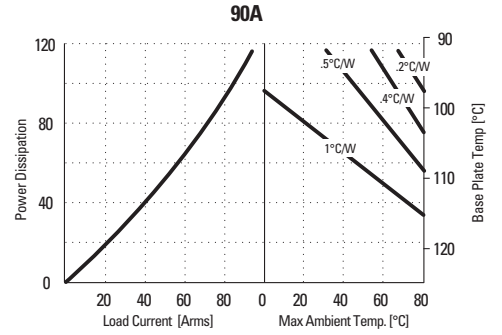
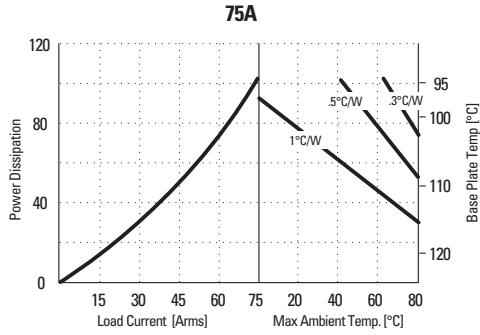
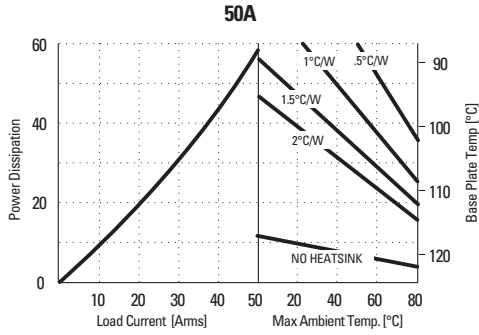
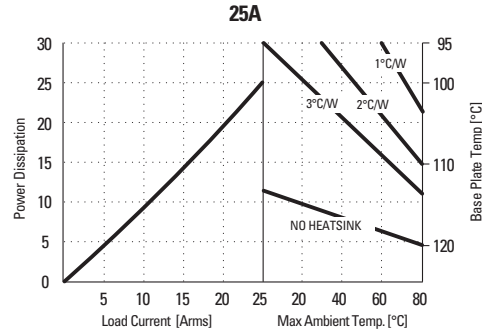
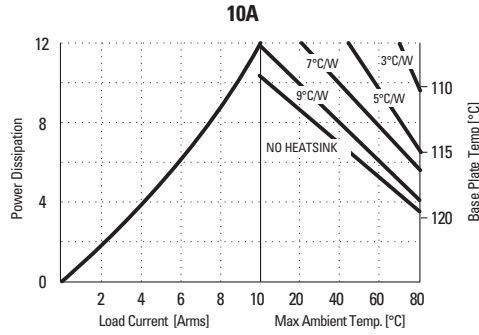
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### APPROVALS

UL E116949  
CSA LR81689  
VDE 10143 UG (Not Applicable: -B and 4D)



## CURRENT DERATING CURVES



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**DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / PERIGO**

<p><b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.</b></p> <ul style="list-style-type: none"> <li>• Disconnect all power before installing or working with this equipment.</li> <li>• Verify all connections and replace all covers before turning on power.</li> </ul> <p><b>Failure to follow these instructions will result in death or serious injury.</b></p>	<p><b>RIESGO DE DESCARGA ELECTRICA O EXPLOSION.</b></p> <ul style="list-style-type: none"> <li>• Desconectar todos los suministros de energia a este equipo antes de trabajar con este equipo.</li> <li>• Verificar todas las conexiones y colocar todas las tapas antes de energizar el equipo.</li> </ul> <p><b>El incumplimiento de estas instrucciones puede provocar la muerte o lesiones serias.</b></p>	<p><b>RISQUE DE DESCARGE ELECTRIQUE OU EXPLOSION</b></p> <ul style="list-style-type: none"> <li>• Eteindre toutes les sources d'énergie de cet appareil avant de travailler dessus de cet appareil</li> <li>• Vérifier tous connections, et remettre tous couverts en place avant de mettre sous</li> </ul> <p><b>De non-suivi de ces instructions provoquera la mort ou des lésions sérieuses.</b></p>	<p><b>GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.</b></p> <ul style="list-style-type: none"> <li>• Stellen Sie jeglichen Strom ab, der dieses Gerät versorgt, bevor Sie an dem Gerät Arbeiten durchführen</li> <li>• Vor dem Drehen auf Energie alle Anschlüsse überprüfen und alle Abdeckungen ersetzen.</li> </ul> <p><b>Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.</b></p>	<p><b>RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.</b></p> <ul style="list-style-type: none"> <li>• Spenga tutta l'alimentazione e che fornisce questa apparecchiatura prima del lavorare a questa apparecchiatura</li> <li>• Verificare tutti i collegamenti e sostituire tutte le coperture prima della rotazione sull'alimentazione</li> </ul> <p><b>L'omissione di seguire queste istruzioni provocherà la morte o di lesioni serie</b></p>	<p><b>RISCO DE DESCARGA ELÉTRICA OU EXPLOÇÃO</b></p> <ul style="list-style-type: none"> <li>• Desconectar o equipamento de toda a energia antes de instalar ou trabalhar com este equipamento</li> <li>• Verificar todas as conexões e recolocar todas as tampas antes de religar o equipamento</li> </ul> <p><b>O não cumprimento destas instruções pode levar a morte ou lesões sérias.</b></p>
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**WARNING / AVERTISSEMENT / WARNUNG / ADVERTENCIA / AVVERTENZA / AVISO**

<p><b>RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE</b></p> <ul style="list-style-type: none"> <li>• The product's side panels may be hot, allow time for product to cool before touching.</li> <li>• Follow proper mounting instructions including torque values.</li> <li>• Do not allow liquids or foreign objects to enter this product.</li> </ul> <p><b>Failure to follow this instruction can result in serious injury, or equipment damage.</b></p>	<p><b>RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER</b></p> <ul style="list-style-type: none"> <li>• Les panneaux latéraux du produit peuvent être chauds. Laisser le produit refroidir avant de le toucher.</li> <li>• Respecter les consignes de montage, et notamment les couples de serrage.</li> <li>• Ne pas laisser pénétrer de liquide ni de corps étrangers à l'intérieur du produit.</li> </ul> <p><b>Le non-respect de cette directive peut entraîner, des lésions corporelles graves ou des dommages matériels.</b></p>	<p><b>GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG</b></p> <ul style="list-style-type: none"> <li>• Die Seitenwände können heiß sein. Lassen Sie das Produkt abkühlen, bevor Sie es berühren.</li> <li>• Beachten Sie die Montageanweisungen,</li> <li>• Führen Sie keine Flüssigkeiten oder Fremdkörper in das Produkt ein.</li> </ul> <p><b>Die Nichtbeachtung dieser Anweisung kann Körperverletzung oder Materialschäden zur Folge haben.</b></p>
<p><b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO DE LA UNIDAD</b></p> <ul style="list-style-type: none"> <li>• Los paneles laterales del producto pueden estar calientes. Esperar que el producto se enfríe antes de tocarlo.</li> <li>• Respetar las instrucciones de montaje, y en particular los pares de apretado.</li> <li>• No dejar que penetren líquidos o cuerpos extraños en el producto.</li> </ul> <p><b>Si no se respetan estas precauciones pueden producirse graves lesiones, daños materiales.</b></p>	<p><b>RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO</b></p> <ul style="list-style-type: none"> <li>• I pannelli laterali dell'apparecchio possono scottare; lasciar quindi raffreddare il prodotto prima di toccarlo.</li> <li>• Seguire le istruzioni di montaggio corrette.</li> <li>• Non far entrare liquidi o oggetti estranei in questo apparecchio.</li> </ul> <p><b>La mancata osservanza di questa precauzione può causare gravi rischi per l'incolumità personale o danni alle apparecchiature.</b></p>	<p><b>RISCO DE DANO MATERIAL E DE AQUECIMENTO</b></p> <ul style="list-style-type: none"> <li>• Os painéis laterais do produto podem estar quentes; dê tempo ao produto para arrefecer antes de lhe tocar.</li> <li>• Siga devidamente as instruções de montagem.</li> <li>• Não permita a entrada de líquidos e de objectos estranhos no produto.</li> </ul> <p><b>A não observância destas precauções pode provocar a morte, ferimentos graves ou danos materiais.</b></p>

## ANNEX – ENVIRONMENTAL INFORMATION:

The environmental information disclosed in this annex including the EIP Pollution logo are in compliance with People's Republic of China Electronic Industry Standard SJ/T11364 – 2006, Marking for Control of Pollution Caused by Electronic Information Products.

Part Name	Toxic or hazardous Substance and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr (VI))	Polybrominated biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)
Semiconductor die	X	O	O	O	O	O
Solder	X	O	O	O	O	O

### 附件 - 环保信息:

此附件所标示的包括电子信息产品污染图标的环保信息符合中华人民共和国电子行业标准 **SJ/T11364 - 2006**, 电子信息产品污染控制标识要求

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
半导体芯片	X	O	O	O	O	O
焊接点	X	O	O	O	O	O

