

## CMD/CMA24 Series

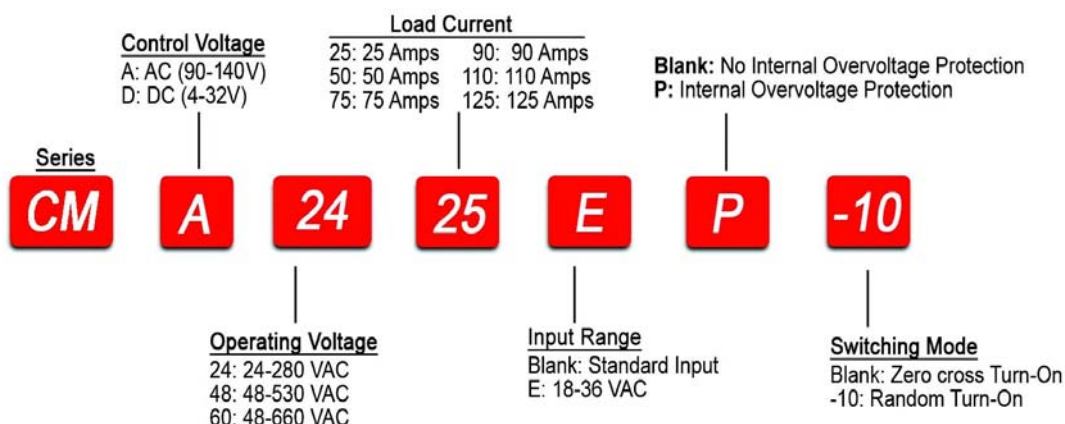


- Ratings from 25A to 125A @ 24-280 VAC
- SCR output for heavy industrial loads
- AC or DC control
- LED input status indicator
- Zero-crossing (resistive loads) or random-fire (inductive loads) output
- IP20 touch-safe housing
- Standard box-clamp connections

### PRODUCT SELECTION

| Control Voltage | 25A      | 50A      | 75A      | 90A      | 110A      | 125A      |
|-----------------|----------|----------|----------|----------|-----------|-----------|
| 3-32 VDC        | CMD2425  | CMD2450  | CMD2475  | CMD2490  | CMD24110  | CMD24125  |
| 90-140 VAC      | CMA2425  | CMA2450  | CMA2475  | CMA2490  | CMA24110  | CMA24125  |
| 18-36 VAC       | CMA2425E | CMA2450E | CMA2475E | CMA2490E | CMA24110E | CMA24125E |

### AVAILABLE OPTIONS



### OUTPUT SPECIFICATIONS (1)

| Description                                                                  | 25A     | 50A       | 75A       | 90A       | 110A       | 125A        |
|------------------------------------------------------------------------------|---------|-----------|-----------|-----------|------------|-------------|
| Operating Voltage (47-63Hz) [Vrms]                                           | 24-280  | 24-280    | 24-280    | 24-280    | 24-280     | 24-280      |
| Transient Overvoltage [Vpk]                                                  | 600     | 600       | 600       | 600       | 600        | 600         |
| Maximum Off-State Leakage Current @ Rated Voltage [mA <sub>rms</sub> ]       | 10      | 10        | 10        | 10        | 10         | 10          |
| Minimum Off-State dv/dt @ Maximum Rated Voltage [V/μsec] (2)                 | 500     | 500       | 500       | 500       | 500        | 500         |
| Maximum Load Current (3) [A <sub>rms</sub> ]                                 | 25      | 50        | 75        | 90        | 110        | 125         |
| Minimum Load Current [A <sub>rms</sub> ]                                     | 0.15    | 0.15      | 0.25      | 0.25      | 0.25       | 0.025       |
| Maximum 1 Cycle Surge Current (50/60) [A <sub>pk</sub> ]                     | 239/250 | 597/625   | 954/1000  | 1145/1200 | 1432/1500  | 1670/1750   |
| Maximum On-State Voltage Drop @ Rated Current [V <sub>pk</sub> ]             | 1.6     | 1.6       | 1.6       | 1.6       | 1.6        | 1.6         |
| Thermal Resistance Junction to Case [R <sub>jc</sub> ] [°C/W]                | 1.02    | 0.63      | 0.31      | 0.28      | 0.25       | 0.22        |
| Maximum I <sup>2</sup> t for Fusing 50/60Hz (1/2 cycle) [A <sup>2</sup> sec] | 285/259 | 1779/1621 | 4555/4150 | 6560/5976 | 10249/9338 | 13950/12709 |
| Minimum Power Factor (with Maximum Load)                                     | 0.5     | 0.5       | 0.5       | 0.5       | 0.5        | 0.5         |

### INPUT SPECIFICATIONS (1)

| Description                     | CMD           | CMA              |
|---------------------------------|---------------|------------------|
| Control Voltage Range           | 3-32 VDC      | 90-140 Vrms      |
| Maximum Reverse Voltage         | 32 VDC        | -                |
| Minimum Turn-On Voltage         | 3.0 VDC       | 90 Vrms          |
| Minimum Turn-Off Voltage        | 1.0 VDC       | 10 Vrms          |
| Maximum Input Current           | 30 mA         | -                |
| Typical Input current           | 17 mA @ 5 VDC | 15 mA @ 120 Vrms |
| Maximum Turn-On Time [msec] (4) | 1/2 Cycle     | 10               |
| Maximum Turn-Off Time [msec]    | 1/2 Cycle     | 40               |

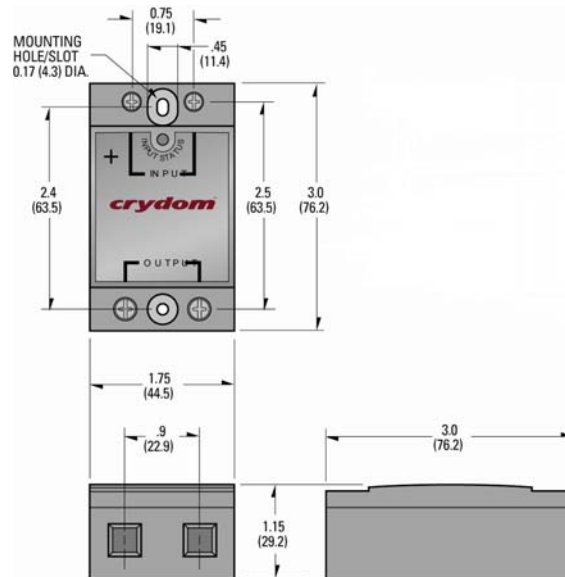
### GENERAL SPECIFICATIONS

| 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                                                     |
| Status Indicating Display                        | Green LED                                                         |
| Weight (typical)                                 | 3.0 oz (86.5 g)                                                   |
| Encapsulation                                    | Thermally conductive Epoxy                                        |
| Terminals                                        | Cage type                                                         |
| Maximum Wire Size-Output:                        | AWG 8 (3.8mm)                                                     |
| Maximum Wire Size-Input:                         | AWG 12 (2.5mm)                                                    |
| Recommended Terminal Screw Torque Range:         | Output: 10-15 in lb (1.1-1.7 Nm)<br>Input: 5-6 in lb (0.6-0.7 Nm) |

### GENERAL NOTES

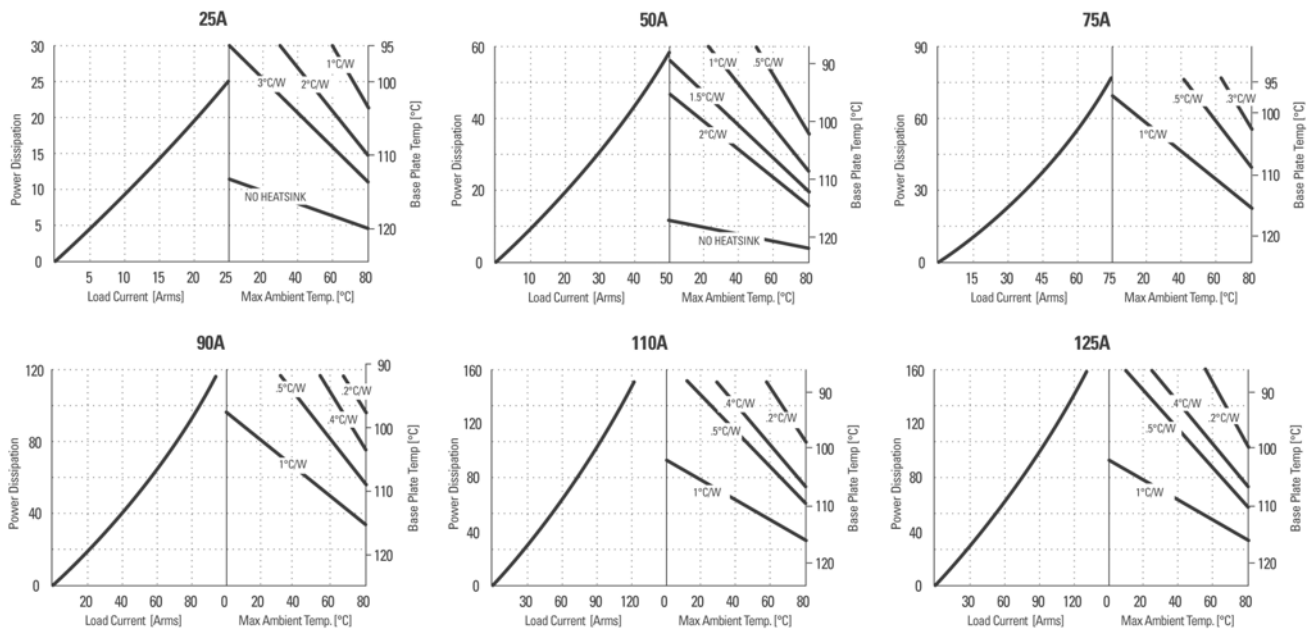
- 1) All parameters at 25°C unless otherwise specified.
- 2) Off-State dv/dt test method per EIA/NARM standard RS-443, paragraph 13.11.1
- 3) HEAT SINKING REQUIRED, FOR DERATING curves see page 2.
- 4) Turn-on time for DC control random turn-on versions is 0.02msec
- 5) Input circuitry incorporates active current limiter

### MECHANICAL SPECIFICATIONS



### THERMAL DERATE INFORMATION

#### CURRENT DERATING CURVES



### AGENCY APPROVALS

Designed in accordance with the requirements of IEC 62314



UL E116949, E116950



LR81689



126921 UG (up to 90A models only)



Rev. 113011

|  <b>DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / PERIGO</b>                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH.</b> <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> | <b>RIESGO DE DESCARGA ELECTRICA O EXPLOSION.</b> <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> | <b>RISQUE DE DESCARGE ELECTRIQUE OU EXPLOSION</b> <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 sérieuses.</b></p> | <b>GEFAHR EINES ELEKTRISCHE N SCHLAGES ODER EINER EXPLOSION.</b> <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 der Inbetriebnahme alle Anschlüsse überprüfen und alle Gehäuseteile montieren.</li> </ul> <p><b>Unterlassung dieser Anweisungen können zum Tode oder zu schweren Verletzungen führen.</b></p> | <b>RISCHIO DI SCOSSA ELETTRICA O DELL'ESPLOSIONE.</b> <ul style="list-style-type: none"> <li>Spenda 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> | <b>RISCO DE DESCARGA ELÉTRICA OU EXPLOÇÃO</b> <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> |

|  <b>WARNING / AVERTISSEMENT / WARNUNG /ADVERTENCIA / AVVERTENZA / AVISO</b>                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE</b> <ul style="list-style-type: none"> <li>The product's side panels may be hot, allow the 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 these instructions can result in serious injury, or equipment damage.</b></p>                                                                          | <b>RISQUE DE DOMMAGE MATERIEL ET DE SURCHAUFFE DU BOITIER</b> <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> | <b>GEFAHR VON MATERIALSCHÄDEN UND GEHÄUSEERHITZUNG</b> <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, 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>                             |
| <b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECIENTAMIENTO DE LA UNIDAD</b> <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> | <b>RISCHIO DI DANNI MATERIALI E D'INVOLUCRO CALDO</b> <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>                           | <b>RISCO DE DANO MATERIAL E DE AQUECIMENTO</b> <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 - ENVIROMENTAL 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                                     |

此附件所标示的包括电子信息产品污染图标的环境信息  
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            |