

- DIN Rail Mount (TS 35)
- MOSFET Output
- Extra Low On State Resistance
- Input Status LED

DC output SPST-NO solid state relays use MOSFET output for high switching capabilities in a DIN Rail (TS-35) mount air-cooled package.

| MODEL NO.  | MS11-CMX60D5 | MS11-CMX60D10 | MS11-CMX100D6 | MS11-CMX200D3 |
|--|--------------|---------------|---------------|---------------|
| <b>INPUT SPECIFICATIONS</b> ①                                  |              |               |               |               |
| Control Voltage Range  | 5-10 Vdc     | 5-10 Vdc      | 5-10 Vdc      | 6-10 Vdc      |
| Nominal Input Impedance  | 300 Ohm      | 300 Ohm       | 300 Ohm       | 300 Ohm       |
| Typical Input Current @ 5 Vdc                                  | 12 mA        | 12 mA         | 12 mA         | 12 mA         |
| Must Turn On Voltage   | 5 Vdc        | 5 Vdc         | 5 Vdc         | 6 Vdc         |
| Must Turn Off Voltage  | 1.0 Vdc      | 1.0 Vdc       | 1.0 Vdc       | 1.0 Vdc       |
| <b>OUTPUT SPECIFICATIONS</b> ① ③                               |              |               |               |               |
| Operating Voltage Range  | 0-60 Vdc     | 0-60 Vdc      | 0-100 Vdc     | 0-200 Vdc     |
| Load Current Range   | 0-5 Adc      | 0-10 Adc      | 0-6 Adc       | 0-3 Adc       |
| Max. Surge Current, (10 msec)                                  | 60 Apk       | 100 Apk       | 100 Apk       | 30 Apk        |
| Max. Off-State Leakage @ Rated Voltage                         | 100 µAdc     | 100 µAdc ④    | 100 µAdc      | 100 µAdc      |
| Max. On-State Resistance @ Rated Current (R <sub>DS-ON</sub> ) | .10 Ohm      | .018 Ohm      | .040 Ohm      | .20 Ohm       |
| Max. On-State Voltage Drop @ Rated Current                     | 0.5V         | 0.18V         | 0.24V         | 0.6V          |
| Max. Turn-On Time @ 10Vdc Control                              | 1.0 msec     | 1.0 msec      | 1.0 msec      | 1.0 msec      |
| Max. Turn-Off Time @ 10Vdc Control                             | 300 µsec     | 300 µsec      | 300 µsec      | 300 µsec      |

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### GENERAL NOTES

- ① All parameters at 25°C unless otherwise specified.
- ② Dielectric and insulation resistance are measured between input and output.
- ③ Inductive loads should be diode suppressed.
- ④ At 55 Vdc.

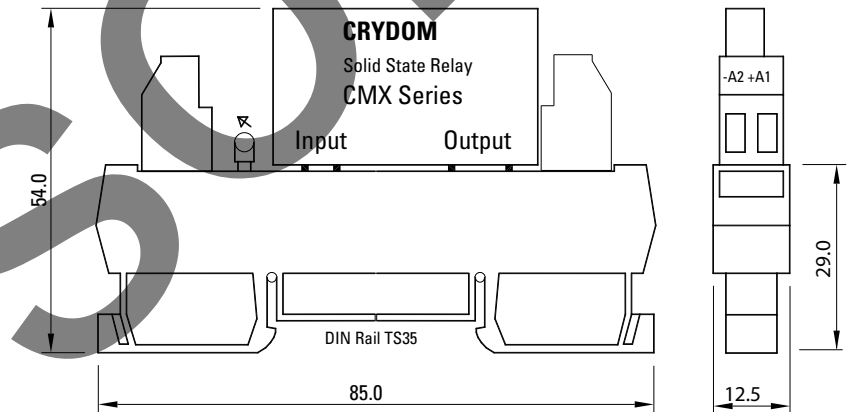
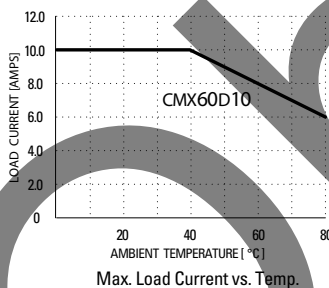
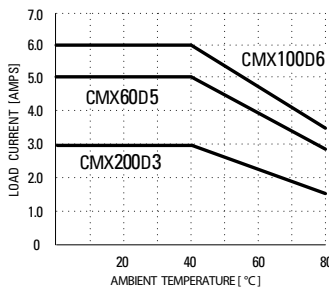
## GENERAL SPECIFICATIONS

|  |                     |
|--|---------------------|
| Dielectric Strength ②                    | 2500 Vrms           |
| Insulation Resistance (Min.) @ 500 Vdc ② | 10 <sup>9</sup> Ohm |
| Max. Capacitance (Input/Output)          | 15 pF               |
| Ambient Operating Temperature Range      | -30 to 80°C         |
| Ambient Storage Temperature Range        | -30 to 125°C        |

## MECHANICAL SPECIFICATIONS

|                     |                            |
|---------------------|----------------------------|
| Weight: (typical)   | 30 g                       |
| Encapsulation(SSR): | Thermally Conductive Epoxy |

## CURRENT DERATING CURVES



All dimensions are in millimeters (not to scale)  
Colour of carrier including terminations - orange

## APPROVALS (SSR ONLY)

UL E116950 (3A, 6A & 10A Models)

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- DIN Rail Mount (TS-35)
- SCR Output Rating
- Ultra High Surge
- Crydom's Patented Design
- Input Status LED

Crydom's family of SPST-NO relays achieves the highest power switching capability in a DIN mounted air-cooled package. Advanced features include exceptional steady state current, plus ultra-high surge ratings. Models are available to switch up to 280 Vrms with AC or DC control, and either zero-cross or random turn-on ("R") switching versions.

| MODEL NUMBERS   | AC CONTROL (120Vac)<br>(24Vac) | MS11-CX2405A<br>MS11-CXE240A5                  |
|---|--------------------------------|--|
|   | DC CONTROL (5Vdc)<br>(24Vdc)   | MS11-CX240D5<br>MS11-CXE240D5                  |
| <b>OUTPUT SPECIFICATIONS</b> ①  |                                |  |
| Operating Voltage (47-63 Hz) [Vrms]                                   |                                | 12-280   |
| Load Current Range [Arms]   |                                | .06-5  |
| Transient Overvoltage [Vpk]   |                                | 600  |
| Max. Surge Current, (16.6ms) [Apk]                                    |                                | 250  |
| Max. On-State Voltage Drop @ Rated Current [Vpk]                      |                                | 1.4  |
| Maximum I <sup>2</sup> t for Fusing, (8.3 msec.) [A <sup>2</sup> sec] |                                | 260  |
| Max. Off-State Leakage Current @ Rated Voltage [mArms]                |                                | 0.1  |
| Min. Off-State dv/dt @ Max. Rated Voltage [V/μsec] ②                  |                                | 500  |
| Max. Turn-On Time ③   |                                | 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  |

| MODEL NUMBERS                           | DC CONTROL              |               | AC CONTROL ④ |               |
|---|-------------------------|---------------|--------------|---------------|
|   | Nominal Voltage<br>5Vdc | 24Vdc         | 120Vac       | 24Vac         |
|   | MS11-CX240D5            | MS11-CXE240D5 | MS11-CX240A5 | MS11-CXE240A5 |
| Control Voltage Range                   | 4-5 Vdc                 | 15-32 Vdc     | 90-140 Vrms  | 18-36 Vrms    |
| Max. Turn-On Voltage                    | 3.0 Vdc                 | 15.0 Vdc      | 90.0 Vrms    | 18.0 Vrms     |
| Min. Turn-Off Voltage                   | 1.0 Vdc                 | 1.0 Vdc       | 10.0 Vrms    | 2.0 Vrms      |
| Nominal Input Impedance                 | 300 Ohm                 | 1.0k Ohm      | 14.1k Ohm    | 4.2k Ohm      |
| Typical Input Current @ Nominal Voltage | 12 mA                   | 8 mA          | 10 mArms     | 5 mArms       |

### 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 Turn-On Time for Random Turn-On versions 0.1msec (DC Control Models).
- ④ No input status LED on AC control modules.

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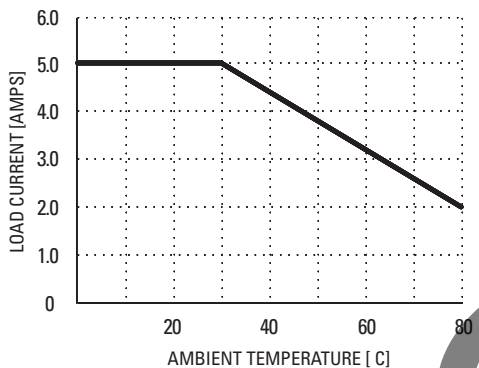
### GENERAL SPECIFICATIONS

|   |                     |
|---|---------------------|
| Dielectric Strength 50/60Hz Input/Output/Base | 2500 Vrms           |
| Insulation Resistance (Min.) @ 500 Vdc        | 10 <sup>9</sup> Ohm |
| Max. Capacitance Input/Output                 | 10 pF               |
| Ambient Operating Temperature Range           | -30 to 80°C         |
| Ambient Storage Temperature Range             | -30 to 80°C         |

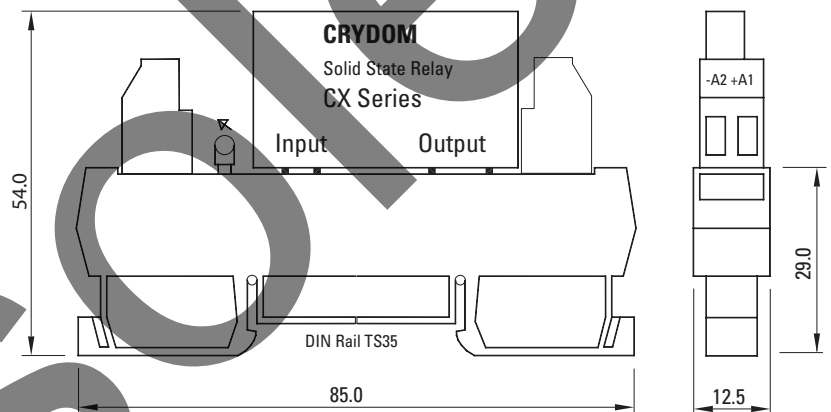
### MECHANICAL SPECIFICATION

|                      |                            |
|----------------------|----------------------------|
| Weight: (typical)    | 30 grms                    |
| Encapsulation (SSR): | Thermally Conductive Epoxy |

### CURRENT DERATING CURVE



Max. Load Current vs. Temp.



- All dimensions are in millimeters (not to scale)
- Colour of carrier and termination housing - orange
- Input status LED is on DC control module only

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### AVAILABLE OPTIONS

R Random Turn-On Switching  
 Example: MS11-CX240D5R, MS11-CX240A5R

### APPROVALS (SSR ONLY)

UL E 116949  
 CSA LR 81689  
 VDE 70938  
 UG (240V, DC Control Only)



**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 ELEKTRISCHEN 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 à morte ou lesões sérias.</b></p> |
|--|--|---|---|---|---|

**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 SOBRECIENTAMIENTO 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   | ○            | ○            | ○                             | ○                              | ○                                     |
| Solder            | X   | ○            | ○            | ○                             | ○                              | ○                                     |

### 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         | ○      | ○      | ○             | ○          | ○            |
| 焊接点   | X         | ○      | ○      | ○             | ○          | ○            |

