

## M SERIES OUTPUT MODULES



- AC Modules have High Current Thyristors with 100 Amp Surge Capability
- Plug into mounting boards for 0.6" modules
- Zero or Random Turn-On Available in AC Modules
- 4kV Optical isolation (1500 VAC Isolation for FET DC Output Modules)
- UL Recognized, CSA Certified, CE Compliant
- Industry standard packaging and Color Coding  
Black (AC Output) Red (DC Output)

## SPECIFICATIONS (1)

### Input

| Part Number             | M-OAC5 | M-OAC5A | M-OAC5AH | M-OAC5AR | M-OAC5R |
|-------------------------|--------|---------|----------|----------|---------|
| Nominal Voltage VDC     | 5.0    | 5.0     | 5.0      | 5.0      | 5.0     |
| Minimum Voltage VDC (2) | 2.75   | 2.75    | 2.75     | 2.75     | 2.75    |
| Maximum Voltage VDC     | 8.0    | 8.0     | 8.0      | 8.0      | 8.0     |
| Drop-out Voltage        | 1.0    | 1.0     | 1.0      | 1.0      | 1.0     |
| Maximum Current (3)     | 20     | 20      | 20       | 20       | 20      |
| Resistance (4)          | 220    | 220     | 220      | 220      | 220     |

### Output

|                                          |                      |                      |                      |                      |                      |
|------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Nominal Line Voltage                     | 120 VAC              | 240 VAC              | 240 VAC              | 240 VAC              | 120 VAC              |
| Minimum Line Voltage                     | 12 VAC               | 24 VAC               | 24 VAC               | 24 VAC               | 12 VAC               |
| Maximum Line Voltage                     | 140 VAC              | 280 VAC              | 280 VAC              | 280 VAC              | 140 VAC              |
| Max Off-State Voltage (5)                | 400 Vpeak            | 600 Vpeak            | 600 Vpeak            | 600 Vpeak            | 400 Vpeak            |
| Max Off-State Leakage (6)                | 0.1mA <sub>rms</sub> | 0.1mA <sub>rms</sub> | 0.1mA <sub>rms</sub> | 0.1mA <sub>rms</sub> | 0.1mA <sub>rms</sub> |
| Static Off-State dv/dt (7)               | 200 V/usec           | 200 V/usec           | 200 V/usec           | 200 V/usec           | 200 V/usec           |
| Maximum Rated On-State Current (8)       | 3.5 Arms             | 3.5 Arms             | 5.0 Arms             | 3.5 Arms             | 3.5 Arms             |
| Minimum On-State Current                 | 50 mA <sub>rms</sub> | 50 mA <sub>rms</sub> | 50 mA <sub>rms</sub> | 50 mA <sub>rms</sub> | 50 mA <sub>rms</sub> |
| Max Surge Current (9)                    | 100 Apeak            | 100 Apeak            | 100 Apeak            | 100 Apeak            | 100 Apeak            |
| On-State Voltage Drop or Resistance (10) | 1.6 V                | 1.6 V                | 1.6 V                | 1.6 V                | 1.6 V                |
| Maximum Turn-On Time [msec] (13)         | 8.33                 | 8.33                 | 8.33                 | 0.1                  | 0.1                  |
| Maximum Turn-Off Time [msec] (13)        | 8.33                 | 8.33                 | 8.33                 | 8.33                 | 8.33                 |
| Input/Output Isolation Voltage (14)      | 4000                 | 4000                 | 4000                 | 4000                 | 4000                 |
| Input/Output Capacitance                 | 8                    | 8                    | 8                    | 8                    | 8                    |
| Operating Temperature Range              | -30 to 80°C          | -30 to 80°C          | -30 to 80°C          | -30 to 80°C          | -30 to 80°C          |
| Storage Temperature Range                | -40 to 80°C          | -40 to 80°C          | -40 to 80°C          | -40 to 80°C          | -40 to 80°C          |
| Line Frequency Range                     | 47 to 63             | 47 to 63             | 47 to 63             | 47 to 63             | 47 to 63             |
| Weight                                   | 1.1 oz. (31.2g)      | 1.1 oz. (31.2g)      | 1.1 oz. (31.2g)      | 1.1 oz. (31.2g)      | 1.1 oz. (31.2g)      |

### SPECIFICATIONS (1)

#### Input

| Part Number             | M-OAC24 | M-OAC24A | M-ODC5 | M-ODC5A | M-ODC5F |
|-------------------------|---------|----------|--------|---------|---------|
| Nominal Voltage VDC     | 24      | 24       | 5.0    | 5.0     | 5.0     |
| Minimum Voltage VDC (2) | 18      | 18       | 2.75   | 2.75    | 2.75    |
| Maximum Voltage VDC     | 32      | 32       | 8.0    | 8.0     | 8.0     |
| Drop-out Voltage        | 1.0     | 1.0      | 1.0    | 1.0     | 1.0     |
| Maximum Current (3)     | 13      | 13       | 18     | 18      | 18      |
| Resistance (4)          | 2000    | 2000     | 250    | 250     | 250     |

#### Output

|                                          |                 |                 |                 |                 |                 |
|------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Nominal Line Voltage                     | 120 VAC         | 240 VAC         | 5-48 VDC        | 5-150 VDC       | 5-48 VDC        |
| Minimum Line Voltage                     | 12 VAC          | 24 VAC          | 3.0 VDC         | 3.0 VDC         | 3.0 VDC         |
| Maximum Line Voltage                     | 140 VAC         | 280 VAC         | 60 VDC          | 250 VDC         | 60 VDC          |
| Max Off-State Voltage (5)                | 400 Vpeak       | 600 Vpeak       | 60 VDC          | 250 VDC         | 60 VDC          |
| Max Off-State Leakage (6)                | 0.1mArms        | 0.1mArms        | 10 uA           | 10 uA           | 10 uA           |
| Static Off-State dv/dt (7)               | 200 V/usec      | 200 V/usec      | N/A             | N/A             | N/A             |
| Maximum Rated On-State Current (8)       | 3.5 Arms        | 3.5 Arms        | 3.0 A           | 1.0 A           | 3.0 A           |
| Minimum On-State Current                 | 50 mArms        | 50 mArms        | 10 mA           | 10 mA           | 10 mA           |
| Max Surge Current (9)                    | 100 Apeak       | 100 Apeak       | 5.0 A           | 5.0 A           | 5.0 A           |
| On-State Voltage Drop or Resistance (10) | 1.6 V           | 1.6 V           | 1.5 V           | 1.5 V           | 1.5 V           |
| Maximum Turn-On Time [msec] (13)         | 8.33            | 8.33            | 0.1             | 0.1             | 0.025           |
| Maximum Turn-Off Time [msec] (13)        | 8.33            | 8.33            | 0.75            | 0.75            | 0.05            |
| Input/Output Isolation Voltage (14)      | 4000            | 4000            | 4000            | 4000            | 4000            |
| Input/Output Capacitance                 | 8               | 8               | 8               | 8               | 8               |
| Operating Temperature Range              | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     |
| Storage Temperature Range                | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     |
| Line Frequency Range                     | 47 to 63        | 47 to 63        | DC              | DC              | DC              |
| Weight                                   | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) |

### SPECIFICATIONS (1)

#### Input

| Part Number             | M-ODC5MA | M-ODC5MC | M-ODC5ML | M-ODC24 | M-ODC24A |
|-------------------------|----------|----------|----------|---------|----------|
| Nominal Voltage VDC     | 5.0      | 5.0      | 5.0      | 24      | 24       |
| Minimum Voltage VDC (2) | 2.75     | 2.75     | 2.75     | 18      | 18       |
| Maximum Voltage VDC     | 8.0      | 8.0      | 8.0      | 32      | 32       |
| Drop-out Voltage        | 1.0      | 1.0      | 1.0      | 1.0     | 1.0      |
| Maximum Current (3)     | 18       | 18       | 18       | 13      | 13       |
| Resistance (4)          | 250      | 250      | 250      | 2000    | 2000     |

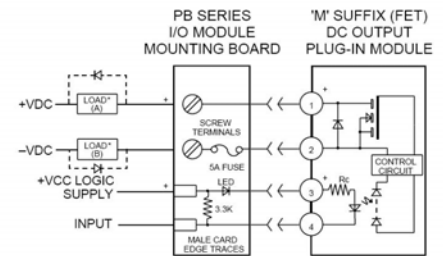
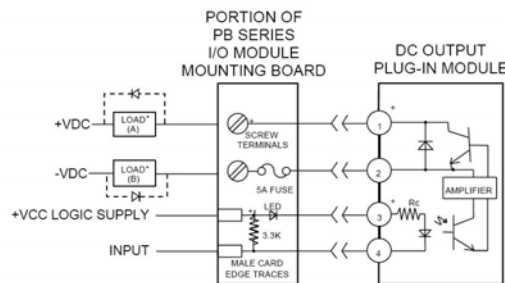
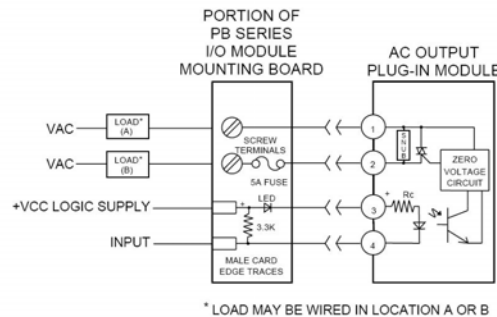
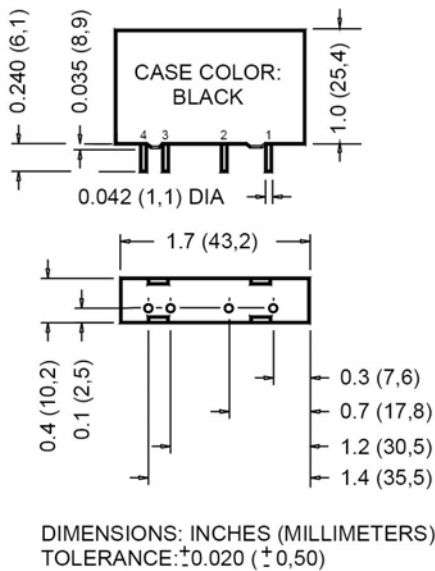
#### Output

|                                          |                 |                 |                 |                 |                 |
|------------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Nominal Line Voltage                     | 5-150 VDC       | 5-90 VDC        | 5-48 VDC        | 5-48 VDC        | 5-150 VDC       |
| Minimum Line Voltage                     | 1.0 VDC         | 1.0 VDC         | 50 VDC          | 60 VDC          | 250 VDC         |
| Maximum Line Voltage                     | 200 VDC         | 100 VDC         | 50 VDC          | 60 VDC          | 250 VDC         |
| Max Off-State Voltage (5)                | 200 VDC         | 100 VDC         | 50 VDC          | 60 VDC          | 250 VDC         |
| Max Off-State Leakage (6)                | 10 uA           | 10 uA           | 10 uA           | 10 uA           | 10 uA           |
| Static Off-State dv/dt (7)               | N/A             | N/A             | N/A             | N/A             | N/A             |
| Maximum Rated On-State Current (8)       | 3.0 A           | 5.0 A           | 1.0 A           | 3.0 A           | 1.0 A           |
| Minimum On-State Current                 | 1.0 mA          | 1.0 mA          | 10 mA           | 10 mA           | 10 mA           |
| Max Surge Current (9)                    | 10 A            | 10 A            | 10 A            | 5.0 A           | 5.0 A           |
| On-State Voltage Drop or Resistance (10) | 0.25 Ohms       | 0.10 Ohms       | 0.05 Ohms       | 1.5 V           | 1.5 V           |
| Maximum Turn-On Time [msec] (13)         | 1.0             | 1.0             | 1.0             | 0.1             | 0.1             |
| Maximum Turn-Off Time [msec] (13)        | 0.05            | 0.05            | 0.05            | 0.75            | 0.75            |
| Input/Output Isolation Voltage (14)      | 1500            | 1500            | 1500            | 4000            | 4000            |
| Input/Output Capacitance                 | 8               | 8               | 8               | 8               | 8               |
| Operating Temperature Range              | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     | -30 to 80°C     |
| Storage Temperature Range                | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     | -40 to 80°C     |
| Line Frequency Range                     | DC              | DC              | DC              | DC              | DC              |
| Weight                                   | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) | 1.1 oz. (31.2g) |

## General Notes:

- (1) Specifications apply to an ambient temperature of -30 to 80 °C unless otherwise noted.
- (2) Without external LED status indicator. Add 1.7 volts for external LED if utilized.
- (3) At nominal input voltage, without external LED status indicator.
- (4)  $\pm 10\%$  at 25°C.
- (5) Maximum 1 minute duration for OAC modules when applied as a DC voltage rather than a peak AC voltage.
- (6) At maximum line voltage, 25°C for OAC modules, and 80°C for ODC modules.
- (7) Minimum DV/DT per EIA/NARM RS433, method RS397, DV/DT ratings do not apply to DC output models
- (8) At 40°C, derate OAC modules 58 mA/°C to 80°C, derate ODC. ODCXMC and ODCXML modules 50 mA/°C to 80°C. CSA rating of OAC modules is 3.0 Arms at 40°C.
- (9) At 25°C for 1 second maximum duration: 1 AC cycle for AC modules, 1 second for DC modules.
- (10) At maximum rated on-state current and 25°C.
- (11) At maximum line voltage, maximum rated output current, nominal input voltage and 25°C. Switching speed of OAC modules is based upon 60 Hz line frequency.
- (12) At 25°C for 1 second maximum duration.
- (13) 1/3 H.P. at 240 VAC, 1/8 H.P. at 120 VAC.

## MECHANICAL SPECIFICATIONS



\* LOAD MAY BE WIRED IN LOCATION A OR B  
DC INDUCTIVE LOADS MUST BE DIODE SUPPRESSED

## AGENCY APPROVALS



Rev. 121311

|  <b>DANGER / PELIGRO / DANGER /GEFAHR / PERICOLO / PERIGO</b>                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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.</b></p> | <b>GEFAHR EINES ELEKTRISCHEN 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 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>                                                                        | <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,</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>                    |
| <b>RIESGO DE DAÑOS MATERIALES Y DE SOBRECALENTAMIENTO 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            |

# Mouser Electronics

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