

## **Mini-Max M235 & M245 Digital Panel Meters**



LCD



LED

- 3/64 DIN Indicator
- Unique mounting bracket allows stacking of multiple units
- Screw terminal connectors for easy installation
- LCD: 3-1/2 or 4-1/2 digit, 0.5" high LCD display with optional negative image, bright red backlighting
- LED: 3-1/2 digit, 0.56" high display
- LED: 4-1/2 digit, 0.40" high display
- Limited range display scaling



# Mini-Max M235 & M245 Digital Panel Meters

| Specifications              |   |   |  |   |
|-----------------------------|---|---|--|---|
|                             | LCD   |   | LED  |   |
|                             | M235  | M245  | M235   | M245  |
| <b>DISPLAY</b>              |   |   |  |   |
| Type                        | 7 segment   |   |  |   |
| Height                      | 0.5" (12.7 mm)  |   | 0.56" (14.2 mm)                                    | 0.4" (10.2 mm)                                      |
| Decimal Point (Selectable)  | 3 position  | 4 position  | 3 position   | 4 position  |
| Overrange Indication        | Most significant digit = "1"  |   | Blinking Display                                   |   |
| Backlighting                | Optional negative image, Red Backlight                                      |   | N/A  |   |
| Polarity                    | Auto with " - " indication, " + " implied                                   |   |  |   |
| <b>POWER REQUIREMENTS</b>   |   |   |  |   |
| AC Volt                     | 85 - 250 VAC @ 40 - 440Hz   |   |  |   |
| DC Volt                     | 9 - 32 DCV  |   | 9 - 32 DCV   |   |
| <b>POWER CONSUMPTION</b>    |   |   |  |   |
| 85 - 250 VAC                | LCD 4.0 VA (2.4W) Max.  |   | 3.6 VA (2.16W) Max.                                |   |
| 9 - 32 DCV                  | LCD 3W Max.   |   | LED 2W Max.  |   |
| ISOLATION                   | 250 VRMS Max  |   |  |   |
| <b>ACCURACY @ 25° C</b>     |   |   |  |   |
| 200 Hz                      | ± 0.2% of input ± 0.2 Hz  |   | Not Available                                      |   |
| 2 KHz                       | ± 0.2% of input ± 2 Hz  |   |  |   |
| DC V & A                    | ± (0.1% of Reading ± 1 count)   | ± (0.04% of Reading ± 1 count)                      | ± (0.1% of Reading ± 1 count)                      | ± (0.04% of Reading ± 1 count)                      |
| DC 2A                       | ± (0.25% of Reading ± 1 count)  |   |  |   |
| DC 5A                       | ± (0.5% of Reading ± 1 count)   |   |  |   |
| AC TRMS V & A               | ± (0.5% of Reading + 5 count)<br>( 50 Hz - 2 KHz )                          | ± (0.5% of Reading + 50 count)<br>( 50 Hz - 2 KHz ) | ± (0.5% of Reading + 2 count)<br>( 50 Hz - 5 KHz ) | ± (0.5% of Reading + 10 count)<br>( 50 Hz - 5 KHz ) |
| DC Process                  | ± (0.02% of Reading ± 1 count)  |   |  |   |
| EXCITATION CURRENT          | 25mA (Maximum)  |   |  |   |
| ENVIRONMENTAL               | 0 to 55°C   |   |  |   |
| Storage Temperature         | -10 to 60°C   |   |  |   |
| Relative Humidity           | 0 to 85% non condensing @ 40°C  |   |  |   |
| Temperature Coefficient     | 0.2% of input ± 0.5 digits / °C   |   |  |   |
| WARM-UP TIME                | Less than 20 minutes  |   |  |   |
| NOISE REJECTION CMRR        | 86 dB Typical   |   |  |   |
| A TO D CONVERSION Technique | Integrating Dual Slope  |   |  |   |
| Rate                        | 3 samples/second typical  |   |  |   |
| <b>FREQUENCY METER</b>      |   |   |  |   |
| Technique                   | Frequency-to-voltage  |   | Not Available                                      |   |
| <b>INPUT LEVEL</b>          |   |   |  |   |
| (Frequency Meter)           | 500mV to 270 VRMS @ 1.0 Meg ohm or 5V to 24V SquareWave (DC offset = 2Vmax) |   | Not Available                                      |   |
| <b>MECHANICAL</b>           |   |   |  |   |
| Bezel                       | 0.95" x 2.84" (24 mm x 72 mm)   |   |  |   |
| Depth                       | 2.36" (60 mm)   |   |  |   |
| Panel Cutout                | 0.88" x 2.68" (22.2 mm x 68 mm)   |   |  |   |
| Weight                      | 3.5 oz. (99.2 g)  |   | 2.6 oz. (74 g)                                     |   |
| Case Material               | 94-0, UL-rated, glass-filled thermoplastic                                  |   |  |   |

# Mini-Max M235 & M245 Digital Panel Meters

| Inputs     |                 |                 |                 |                   |  |
|------------|-----------------|-----------------|-----------------|-------------------|--|
| DC Voltage |                 |                 |                 |                   |  |
| Range      | Resolution M235 | Resolution M245 | Input Impedance | Max Input Unfused |  |
| 200mV      | 100µV           | 10µV            | 10MEG           | 100VDC            |  |
| 2V         | 1mV             | 100µV           | 10MEG           | 250VDC            |  |
| 20V        | 10mV            | 1mV             | 10MEG           | 250VDC            |  |
| 200V       | 100mV           | 10mV            | 9.9MEG          | 250VDC            |  |
| 600V       | 1V              | 100mV           | 9.9MEG          | 600VDC            |  |

| DC/AC TRMS Current |            |       |              |                   |              |                   |
|--------------------|------------|-------|--------------|-------------------|--------------|-------------------|
| Range              | Resolution |       | LCD          |                   | LED          |                   |
|                    | M235       | M245  | Voltage Drop | Max Input Unfused | Voltage Drop | Max Input Unfused |
| 200µA              | 100nA      | 10nA  | 200mVDC      | 10mA              | 200mVDC      | 6mA               |
| 2mA                | 1µA        | 100nA | 200mVDC      | 40mA              | 200mVDC      | 20mA              |
| 20mA               | 10µA       | 1µA   | 200mVDC      | 100mA             | 200mVDC      | 60mA              |
| 200mA              | 100µA      | 10µA  | 200mVDC      | 400mA             | 200mVDC      | 300mA             |
| 2A                 | 1mA        | 100µA | 200mVDC      | 3A                | 200mVDC      | 2.6A              |
| 5A                 | 10mA       | 1mA   | 50mVDC       | 6A                | 100mVDC      | 6A                |

| AC TRMS Voltage |                 |                 |                 |                   |  |
|-----------------|-----------------|-----------------|-----------------|-------------------|--|
| Range           | Resolution M235 | Resolution M245 | Input Impedance | Max Input Unfused |  |
| 200mV           | 100µV           | 10µV            | 500K            | 10VAC             |  |
| 2V              | 1mV             | 100µV           | 100K            | 100VAC            |  |
| 20V             | 10mV            | 1mV             | 1MEG            | 200VAC            |  |
| 200V            | 100mV           | 10mV            | 1MEG            | 200VAC            |  |
| 270V            | 1V              | 100mV           | 1MEG            | 270VAC            |  |
| 600V            | 1V              | 100mV           | 9.9MEG          | 600VAC            |  |

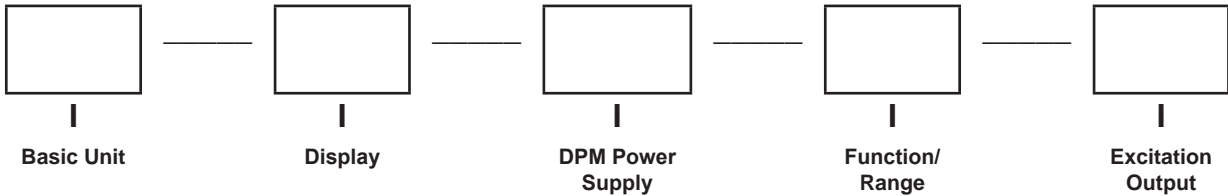
| DC Process  |                 |                 |                 |                   |  |
|-------------|-----------------|-----------------|-----------------|-------------------|--|
| Range       | Resolution M235 | Resolution M245 | Voltage Drop    | Max Input Unfused |  |
| 4 to 20mA   | 0.1%            | 0.01%           | 200mVDC         | 60mA              |  |
|             |                 |                 | Input Impedance |                   |  |
| 1 to 5VDC   | 0.1%            | 0.01%           | 10 MEG          | 250VDC            |  |
| 0 to 10VDC  | 0.1%            | 0.01%           | 10MEG           | 250VDC            |  |
| 0 to 100VDC | 0.1%            | 0.01%           | 10MEG           | 250VDC            |  |

# Mini-Max M235 & M245 Digital Panel Meters

## Ordering Information -

Mini-Max indicators can be configured by making an entry in each section below.

Example: M245-1-0-71-0.



| Select From Each One Below |      |               |
|----------------------------|------|---------------|
| Basic Unit                 |      |               |
|                            | M235 | 3-1/2 Digit   |
|                            | M245 | 4-1/2 Digit * |

| Display |   |                              |
|---------|---|------------------------------|
|         | 0 | Non Backlit (LCD)            |
|         | 1 | Negative Red Backlight (LCD) |
|         | 2 | Red (LED)                    |

| DPM Power Supply |   |              |
|------------------|---|--------------|
|                  | 0 | 85 - 250 ACV |
|                  | 2 | 9 - 32 DCV * |

| Function / Range |    |           |
|------------------|----|-----------|
|                  | 11 | 200 DCmV  |
|                  | 12 | 2 DCV     |
|                  | 13 | 20 DCV    |
|                  | 14 | 200 DCV   |
|                  | 15 | 600 DCV † |

|  |    |          |
|--|----|----------|
|  | 21 | 200 DCμA |
|  | 22 | 2 DCmA   |
|  | 23 | 20 DCmA  |
|  | 24 | 200 DCmA |
|  | 25 | 2 DCA    |
|  | 26 | 5 DCA    |

|     |  |  |
|-----|--|--|
| *   | Not Available on Frequency (Hz) Meters |  |
| **  | Not Available on LED Display           |  |
| *** | Not Available on M245                  |  |
| †   | Not Available on LCD Display           |  |
| † † | Not Available on M245 Frequency Meters |  |

| Select From Each One Below   |    |                |
|------------------------------|----|----------------|
| Function / Range (continued) |    |                |
|                              | 31 | 200 ACmV TRMS  |
|                              | 32 | 2 ACV TRMS     |
|                              | 33 | 20 ACV TRMS    |
|                              | 34 | 200 ACV TRMS   |
|                              | 36 | 270 ACV TRMS   |
|                              | 35 | 600 ACV TRMS † |

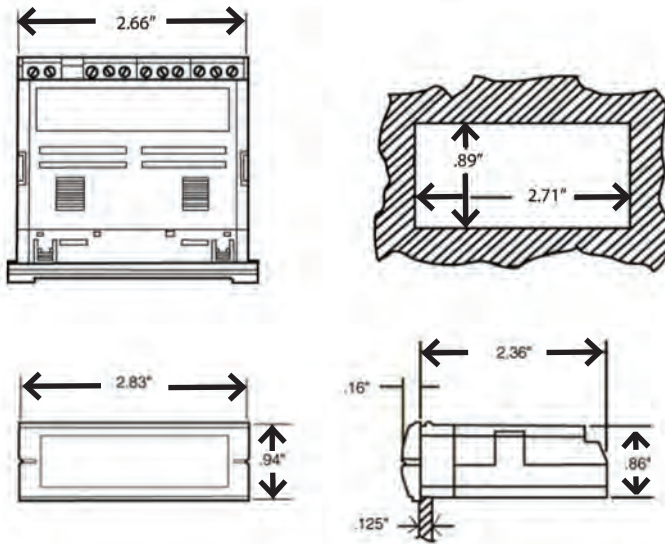
|  |    |               |
|--|----|---------------|
|  | 41 | 200 ACμA TRMS |
|  | 42 | 2 ACmA TRMS   |
|  | 43 | 20 ACmA TRMS  |
|  | 44 | 200 ACmA TRMS |
|  | 45 | 2 ACA TRMS    |
|  | 46 | 5 ACA TRMS    |

|  |    |                            |
|--|----|----------------------------|
|  | 71 | 4 - 20 DCmA ( DC Process ) |
|  | 72 | 1 - 5 DCV ( DC Process )   |
|  | 73 | 0 - 10 DCV ( DC Process )  |

|  |    |                        |          |
|--|----|------------------------|----------|
|  | 81 | 20 - 199.9 Hz RMS      | ** & *** |
|  | 82 | 20 - 1999 Hz RMS       | ** & *** |
|  | 83 | 20 - 199.9 Hz Sq. Wave | ** & *** |
|  | 84 | 20 - 1999 Hz Sq. Wave  | ** & *** |

| Excitation Output |   |                   |
|-------------------|---|-------------------|
|                   | 0 | None              |
|                   | 1 | 12 DCV @ 25mA † † |
|                   | 2 | 24 DCV @ 25mA † † |

## Dimensions - M235, M245 & M240

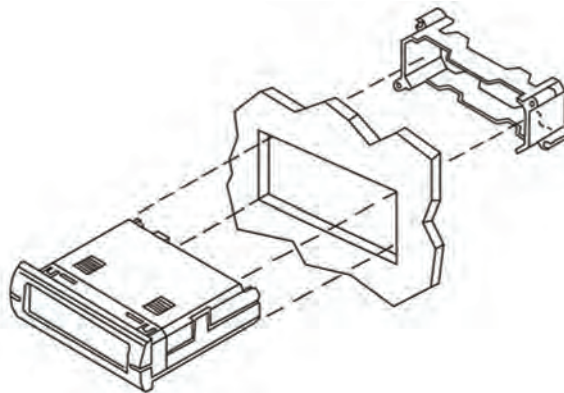


## Mounting Requirements -

Insert the Mini-Max through the panel, and then slide the mounting bracket on to the Mini-Max.

The mounting bracket allows Mini-Max units to be stacked side-to-side or top-to-bottom.

Panel cutout instructions for stacking multiple units are provided in the operator's manual.



Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

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Мы предлагаем:

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- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
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- Работу по проектам и поставку образцов.
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Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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