

## **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

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		Not Available	
<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		Not Available	
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) (50 Hz - 2 KHz)	± (0.5% of Reading + 50 count) (50 Hz - 2 KHz)	± (0.5% of Reading + 2 count) (50 Hz - 5 KHz)	± (0.5% of Reading + 10 count) (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			

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

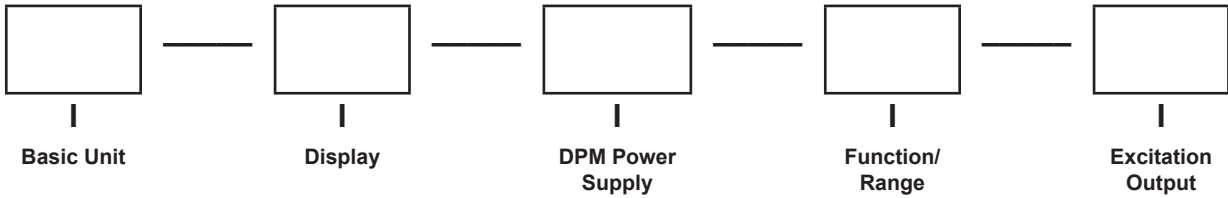
AC TRMS Voltage					
Range	Resolution M235	Resolution M245	Input Impedance	Max Input Unfused	
200mV	100µV	10µV	500K	10VAC	
2V	1mV	100µV	100K	100VAC	
20V	10mV	1mV	1MEG	200VAC	
200V	100mV	10mV	1MEG	200VAC	
270V	1V	100mV	1MEG	270VAC	
600V	1V	100mV	9.9MEG	600VAC	

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	

## 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 †

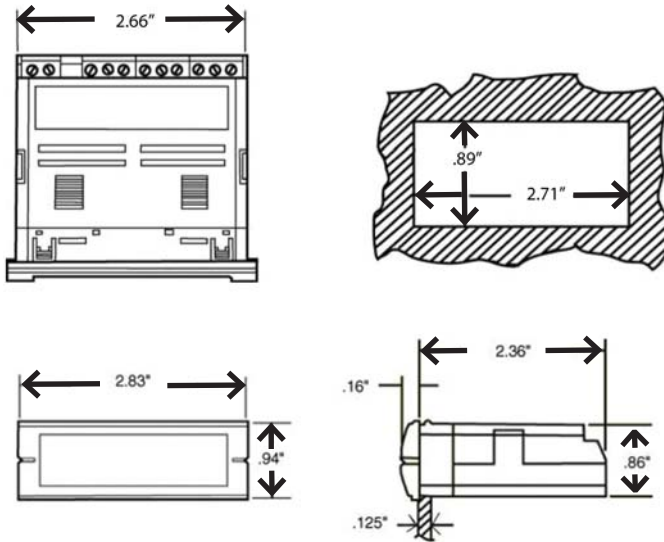
	41	200 ACμA TRMS
	42	2 ACmA TRMS
	43	20 ACmA TRMS
	44	200 ACmA TRMS
	45	2 ACA TRMS
	46	5 ACA TRMS

	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.

