

# Mini-Max M235 & M245 Digital Panel Meters



**TRANSCAT**

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- 3/64 DIN Indicator
- Unique mounting bracket allows stacking of multiple units
- Screw terminal connectors for easy installation
- 3-1/2 or 4-1/2 digit LCD display with optional negative red backlighting

## Specifications

<b>DISPLAY</b>	
Type	7-segment LCD
Height	0.5" (12.7mm)
Decimal point	3 or 4 position user-programmable
Overrange indication	Most significant digit = "1", other digits blank
Backlighting	Optional negative image, red backlighting
Polarity	Auto with "-" indication, "+" implied
<b>POWER REQUIREMENTS</b>	
AC Volt	85-250VAC @40-440Hz
DC Volt	9-32DCV
Power Consumption	
85-250VAC	2.5VA min/4VA max
9-32DCV	1.5VA min/3VA max
Rated Circuit to Ground Voltage	250VRMS
<b>ACCURACY @ 25°C</b>	
200 Hz	±0.2% of input ± 0.2Hz
2 KHz	±0.2% of input ± 2 Hz
DC V & A M235	±0.1% of reading ± 1 count
DC V & A M245	±0.04% of reading ± 1 count
DC 2A M235 & M245	±0.25% of reading ± 1 count
DC 5A M235 & M245	±0.5% of reading ± 1 count
AC TRMS V & A M235	±0.5% of reading ± 5 counts
AC TRMS V & A M245	±0.5% of reading ± 50 counts
DC Process M235	±0.01% of reading ± 1 count
DC Process M245	±0.01% of reading ± 1 count
Excitation Max. Current	25mA
<b>ENVIRONMENTAL</b>	
Operating Temperature	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
Warmup time	Less than 20 minutes
<b>NOISE REJECTION</b>	
CMRR	86dB Typical
<b>A TO D CONVERSION</b>	
Technique	Integrating
Rate	3 samples/second typical
<b>FREQUENCY</b>	
Technique:	Frequency-to-voltage
<b>INPUT LEVEL (Frequency)</b>	500mV to 750VRMS at 1.0MΩ impedance OR 5V to 24V Square Wave (DC offset 2V max)
<b>TEMPERATURE COEFFICIENT</b>	.02% of reading ± .2 digits/°C
<b>MECHANICAL</b>	
Bezel:	0.94" x 2.83"
Depth:	2.36"
Panel cutout:	0.89" x 2.71" (22.6mm x 68.8mm)
Weight:	3.5oz (99g)
Case Material:	94-0,UL-rated, glass-filled thermoplastic

## Inputs

### DC Voltage

Range	Resolution M235	Resolution M245	Input Impedance	Max Input Infused
200mV	100µV	10µV	>10MEG	100Vdc
2V	1mV	100µV	>10MEG	250Vdc
20V	10mV	1mV	>10MEG	250Vdc
200V	100mV	10mV	>9.9MEG	250Vdc

### DC/AC TRMS Current

Range	Resolution M235	Resolution M245	Voltage Drop	Max Input Infused
200µA	100nA	10nA	200mVdc	10mA
2mA	1µA	100nA	200mVdc	40mA
20mA	10µA	1µA	200mVdc	100mA
200mA	100µA	10µA	200mVdc	400mA
2A	1mA	100µA	200mVdc	3A
5A	10mA	1mA	50mVdc	6A

### AC TRMS Voltage

Range	Resolution M235	Resolution M245	Input Impedance	Max Input Infused
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

### DC Process

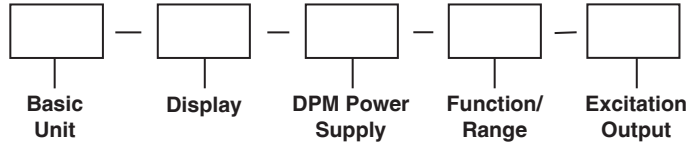
Range	Resolution M235	Resolution M245	Voltage Drop	Max Input Infused
4 to 20mA	0.10%	0.01%	200mVdc	60mA
1 to 5Vdc	0.10%	0.01%	Input Impedance >10MEG	250Vdc
0 to 10Vdc	0.10%	0.01%	>10MEG	250Vdc
0 to 100Vdc	0.10%	0.01%	>10MEG	250Vdc

Mounting Requirements: see page A6

more >>

## Ordering Information

Mini-Max Indicators can be configured by making an entry in each section. Example: M245-1-0-71-0.



Selection	Description	Selection	Description
<b>Basic Unit</b>		<b>Function/Range (continued)</b>	
M235 M245	3-1/2 Digit LCD	31	200 mVAC TRMS
	4-1/2 Digit LCD	32	2 VAC TRMS
		33	20 VAC TRMS
		34	200 VAC TRMS
		36	270 VAC TRMS
<b>Display</b>			
0	Non Backlit	41	200 AC $\mu$ A TRMS
1	Negative Red Backlight	42	2 ACmA TRMS
		43	20 ACmA TRMS
		44	200 ACmA TRMS
		45	2 ACA TRMS
		46	5 ACA TRMS
<b>DPM Power Supply</b>			
0	85-250 ACV	71	4-20 DCmA (DC Process)
2	9-32 DCV*	72	1-5 DCV (DC Process)
		73	0-10 DCV (DC Process)
		74	0-100 DCV (DC Process)
<b>Function/Range</b>			
11	200 DCmV	81 (M235)	20-199.9 Hz RMS
12	2 DCV	82 (M235)	20-1999 Hz RMS
13	20 DCV	83 (M235)	20-199.9 Hz Sq. Wave
14	200 DCV	84 (M235)	20-1999 Hz Sq. Wave
21	200 DC $\mu$ A	<b>Excitation Output (N/A w/Frequency)</b>	
22	2 DCmA	0	None
23	20 DCmA	1	12 DCV @ 25mA
24	200 DCmA	2	24 DCV @ 25mA
25	2 DCA		
26	5 DCA		

\* Not Available on Frequency (Hz) Meters