

# EM32 SERIES

ROUND HOLE MOUNTING VOLTMETER

**MARTEL METERS**  
ELECTRONICS

The EM32-1B is a 3-1/2 digit voltmeter designed to be panel mounted in most low and medium volume applications. The meter features 8mm digit height, 3 decimal points, auto-polarity, auto-zero, 200mV full scale reading and a low current consumption. This product is designed so no soldering is required. Connection is via screw terminals, and options are selected via jumper links. The module features a round metal bezel, requiring a 32.5mm (1.28") diameter cut-out. It is secured with the nut provided. Protection from the front to IP67/NEMA4X standards is achieved by placing the rubber seal between the module and panel during assembly.

### Pin Functions

0V	Negative power supply to the meter
V+	Positive power supply to the meter
IHI	Positive measuring input IHI must be no closer than 1.5V to either the positive or negative supply.
ILO	Negative measuring input ILO must be no closer than 1.5V to either the positive or negative supply.

### Jumper Links

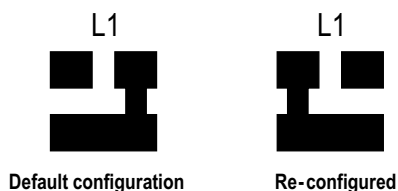
J1	Connects ILO to COM, when jumper link is fitted
J2	Connects ILO to 0V, when jumper link is fitted

### Solder Link L1

Solder link L1 is used to select to power supply mode of the EM32-1B

With L1 in the default configuration, the module operates from a 3.5 to 6.5VDC supply, and measurements can be made with respect to power supply 0V.

When L1 is reconfigured, the module operates from a 7.5 to 14.0VDC supply. The voltage being measured must then be floating with respect to the meter's power supply.



Module shown actual size.

### LCD Voltmeter

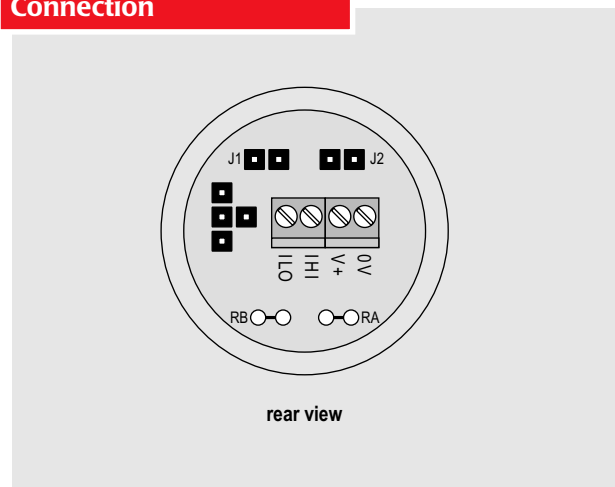
**Stock No. EM32-1B**

- 3-1/2 digit LCD
- 8mm (0.31") digit height
- 3.5 to 6.5V or 7.5 to 14.0V operation
- Auto-zero, auto-polarity
- Selectable decimal points
- 200mVDC full scale reading
- Requires 32.5mm (1.28") diameter cut-out
- IP67/NEMA 4X protected

### Typical Applications

- Panel mount instrumentation
- Process and control
- Automotive

### Connection

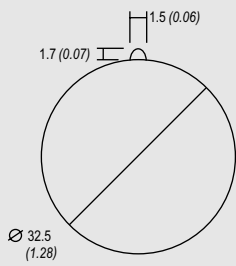


**MARTEL METERS**  
ELECTRONICS

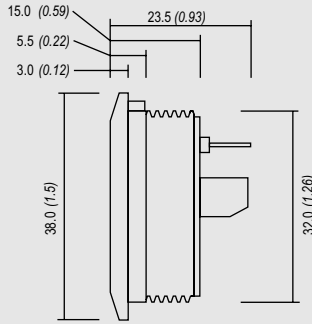
Martel Electronics, P.O. Box 770, Londonderry, NH 03053  
Tel: 800-821-0023, E-mail: sales@martelmeters.com, Web: www.martelmeters.com

## Mechanical Specification

All dimensions in mm (inches)



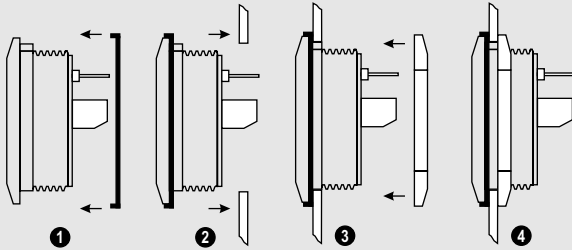
Panel cut-out



Dimensions		EM32-1B	
Digit height	8.0mm	0.31"	
Size (Dia. x Depth) excl. pins	38.0 x 23.5mm	1.5 x 0.93"	
Specification			
Accuracy (overall error)*	0.1% ( $\pm 1$ count) (typ.)		
Full scale reading	$\pm 200$ mVDC		
Linearity	$\pm 1$ count (max.)		
Sample rate	2.5 samples/sec. (typ.)		
Operating temperature range	0°C to 50°C		
Temperature stability	100ppm/°C		
Supply voltage	5VDC (typ.)		
Supply current	500 $\mu$ A (typ.)		
Input leakage current	1 to 10pA (max.)		

\* To ensure maximum accuracy, re-calibrate periodically.

## Mounting Method

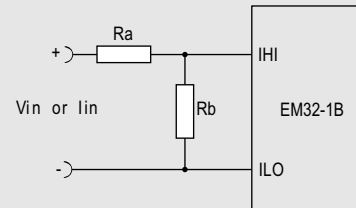


## Scaling

Two resistors, Ra and Rb may be used to alter the full scale reading (FSR) of the meter (see Table). The meter will have to be recalibrated by adjusting the calibration potentiometer on the rear of the module.

	FSR	Ra	Rb
<b>Voltage</b> <i>Vin</i>	2V	910k	100k
	20V	1M	10k
	200V	1M	1k
	2000V*	1M	100R
<b>Current</b> <i>Iin</i>	200 $\mu$ A	0R	1k
	2mA	0R	100R
	20mA	0R	10R
	200mA	0R	1R

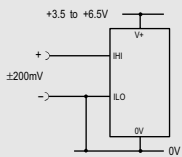
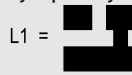
\* Ensure that Ra is rated for high voltage use.



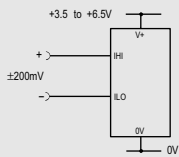
## Applications

Do not connect more than one meter to the same power supply if the meters cannot use the same signal ground. Taking any input beyond the power supply rails will damage the meter.

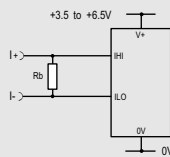
### 5V Supply Operation (3.5 to 6.5V meter power supply)



Measuring a single ended input voltage referenced to supply, i.e. the input voltage and the meter's power supply share the same 0V rail. Ensure jumper J1 is not fitted. Ensure jumper J2 is not fitted.

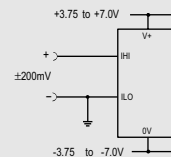
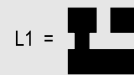


Measuring an input voltage referenced to a floating supply, i.e. the input voltage and the meter's power supply are isolated from each other. Ensure jumper J1 is fitted. Ensure jumper J2 is not fitted.

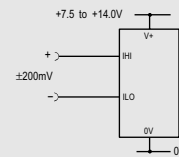


Measuring a current from a circuit which is floating with respect to the meter's supply, i.e. the current and the meter's power supply are isolated from each other. Ensure jumper J1 is fitted. Ensure jumper J2 is not fitted.

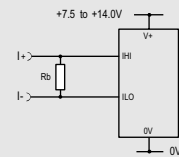
### 9V Supply Operation (7.5 to 14.0V meter power supply)



Measuring a single ended input voltage referenced to supply, i.e. the input voltage and the meter's power supply share the same 0V rail. Ensure jumper J1 is not fitted. Ensure jumper J2 is not fitted.



Measuring an input voltage referenced to a floating supply, i.e. the input voltage and the meter's power supply are isolated from each other. Ensure jumper J1 is fitted. Ensure jumper J2 is not fitted.



Measuring a current from a circuit which is floating with respect to the meter's supply, i.e. the current and the meter's power supply are isolated from each other. Ensure jumper J1 is fitted. Ensure jumper J2 is not fitted.