

# OEM 1

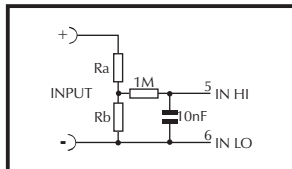
Ultra-Miniature, Low Power, LCD Voltmeter

The OEM 1 uses the latest miniaturisation techniques to produce a very compact 3 ½ digit LCD voltmeter. It is designed to be a drop-in component in most medium and high volume applications, ranging from shirt-pocket instrumentation and integral sensor indicators to measurement probes. The meter features 5.5mm digit height, 3 decimal points, auto-polarity, auto-zero, 200mV full scale reading and a very low current consumption. The user need only add a calibration circuit. Connection to the module is via a row of pins.

- 🔊 5.5mm Digit Height
- 🔊 Selectable Decimal Points
- 🔊 Auto-zero
- 🔊 Auto-polarity
- 🔊 200mV d.c. Full Scale Reading (F.S.R.)  
(when using 100mV reference)

## SCALING

A potential divider may be used to alter the full scale reading (F.S.R.) of the meter - see table (using 100 mV reference).

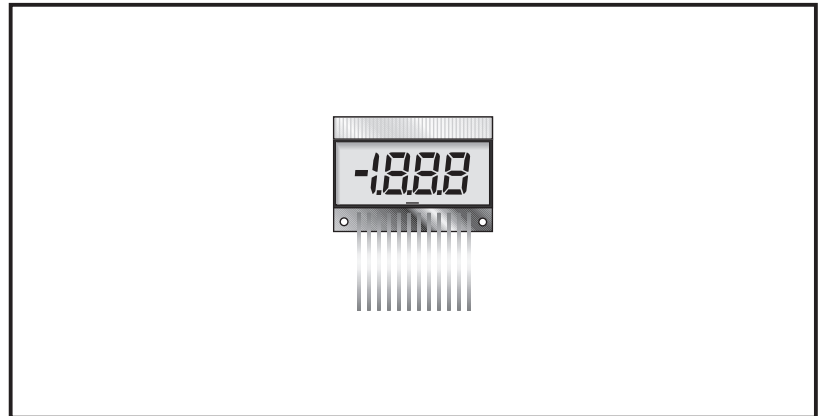


| Required F.S.R. | Ra   | Rb   |
|-----------------|------|------|
| 2V              | 910k | 100k |
| 20V             | 1M   | 10k  |
| 200V            | 1M   | 1k   |
| 2kV*            | 10M* | 1k   |
| 200µA           | 0R   | 1k   |
| 2mA             | 0R   | 100R |
| 20mA            | 0R   | 10R  |
| 200mA           | 0R   | 1R   |

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

## NOTE

The meter will have to be re-calibrated by adjusting the externally fitted calibration potentiometer.



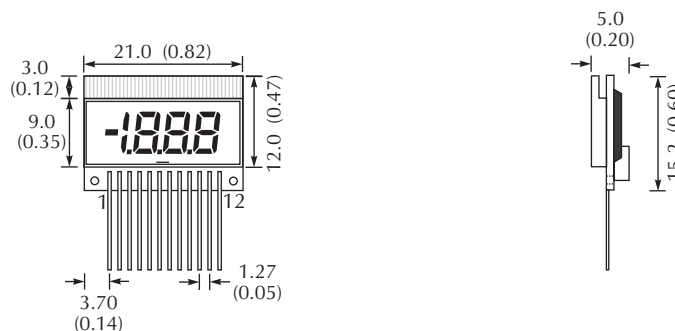
| Standard Meter                   | Stock Number OEM 1 |      |      |              |
|----------------------------------|--------------------|------|------|--------------|
| Specification                    | Min.               | Typ. | Max. | Unit         |
| Accuracy (overall error) *       |                    | 0.1  |      | % (±1 count) |
| Linearity                        |                    |      | ±1   | count        |
| Sample rate                      |                    | 3    |      | samples/sec  |
| Operating temperature range      | 0                  |      | 50   | °C           |
| Temperature stability            |                    | 200  |      | ppm/°C       |
| Supply voltage                   | 7                  | 9    | 14   | V            |
| Supply current                   |                    | 150  |      | µA           |
| Input leakage current (Vin = 0V) |                    | 1    | 10   | pA           |

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

## SAFETY

The user must ensure that the incorporation of the OEM 1 into the user's equipment conforms to the relevant sections of BS EN 61010 (Safety Requirements for Electrical Equipment for Measuring, Control and Laboratory Use).

## DIMENSIONS All dimensions in mm (inches)



**WEBSITE: <http://www.lascarelectronics.com/>**

## PIN FUNCTIONS

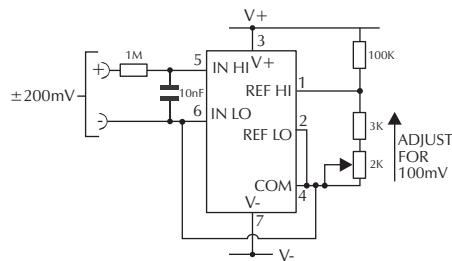
1. REF HI Positive input for reference voltage.
2. REF LO Negative input for reference voltage.
3. V+ Positive power supply connection.
4. COM Ground for analogue section of the A/D converter, it is actively held at 2.8V below V+ and must not be allowed to sink current in excess of 100µA by, for instance, connecting it to a higher voltage.
5. INHI Positive measuring input.
6. INLO Negative measuring input.
7. V- Negative power supply connection.
8. BAT Connecting this pin to XDP will turn on the Low Battery warning annunciator.
9. DP1 199.9 Connect to XDP (Pin 12) to display decimal point 1.
10. DP2 19.99 Connect to XDP (Pin 12) to display decimal point 2.
11. DP3 1.999 Connect to XDP (Pin 12) to display decimal point 3.
12. XDP Annunciator drive waveform for DP1, DP2, DP3 and BAT. This is an inversion of the LCD backplane signal.

## APPLICATIONS

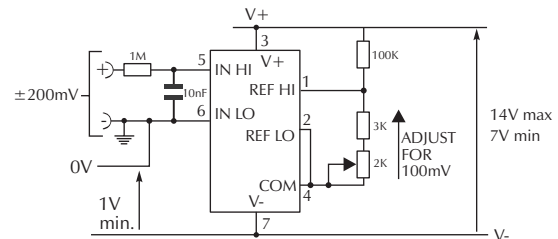
- Personal Gas Monitoring
- Medical Instruments
- Measurement Probes
- Radiation Dose Monitoring
- Other Compact Applications

## VARIOUS OPERATING MODES

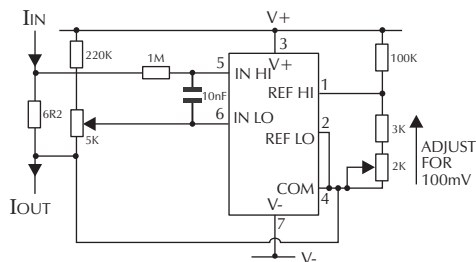
Do not connect more than one meter to the same power supply if the meters cannot use the same signal ground. Taking any input beyond the power supply rails will damage the meter.



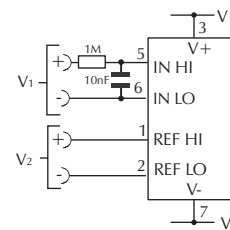
Measuring a floating voltage source of 200mV full scale.



Split supply operation.



Measuring 4-20mA to read 0-999. (supply MUST be isolated).



Measuring the ratio of two voltages.  
 Reading =  $1000 V_1/V_2$   
 $50mV < V_2 < 200mV$   
 $V_1 < 2V_2$