EMA 1710

9 Segment LCD Meter

This low cost, compact indicator is ideally suited for low or high volume applications. The meter features a 9 segment LCD to display 1V d.c. full scale reading. Other voltages and currents can be measured via the addition of 2 scaling resistors. The meter can be used in applications where the order of magnitude of the reading is more important than the value of the reading itself. It allows the operator to scan the display and receive a quick visual feedback. Installation is particularly easy; the module requires only a single round hole in the panel. A rubber seal is included, providing splashproof protection for the unit when fitted to the meter during installation.

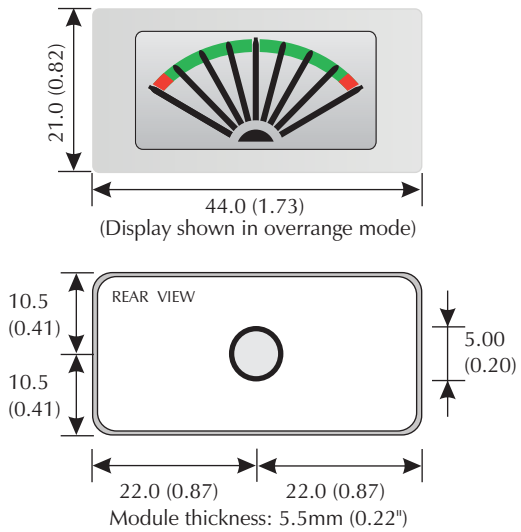
- 9 Segment LCD
- Colour Scale
- Auto-zero
- 1V d.c. Full Scale Reading
- Single Hole Mounting
- No Calibration Required
- Splashproof

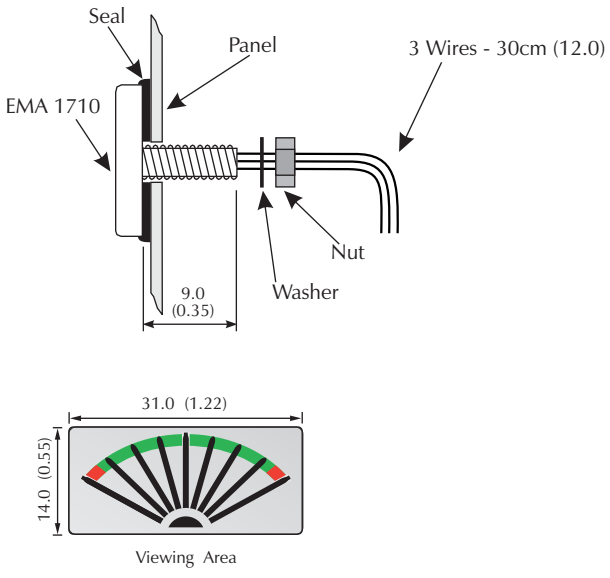


Standard Meter				Stock Number EMA 1710
Specification	Min.	Typ.	Max.	Unit
Accuracy (overall error) *		1		Segment (±1)
Full scale reading		1		V d.c.
Resolution		125		mV d.c.
Sample rate		10		samples/sec
Operating temperature range	0		50	°C
Supply voltage (V+ to V-)	5	9	12	V d.c.
Supply current (@5Vd.c.)		6		mA

* At voltages above 1V d.c., the display flashes.

DIMENSIONS All dimensions in mm (inches)





PANEL FITTING

Drill a 5.5mm / $^{7}/_{32}$" hole in the panel. Fit seal to the rear of the module. Fit the module to the panel by passing its screw threaded stud and the wires through the hole, fitting the washer and tightening the nut. Take care not to trap any of the connecting wires. Do not to overtighten the nut as this may damage the meter.

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WIRE FUNCTIONS

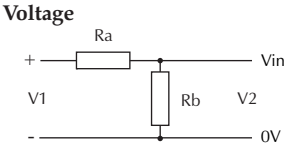
RED	V+	Positive power supply connection.
BLACK	0V	Negative power supply connection.
WHITE	Vin	Positive measuring input with reference to 0V. Range from 0 to 1V d.c.

SCALING

Two external resistors may be used to alter the full scale reading of the meter - see table for sample values. Alternatively, use the following formulae to calculate Ra and Rb. Select the nearest available standard resistor. To achieve optimum accuracy, use 1% metal film resistors.

Required F.S.R.	Ra	Rb
10V	910k	100k
100V	1M	10k
10mA	0R	100R
100mA	0R	10R

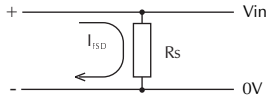
Voltage



$Ra = 1M$

$Rb = Ra. \frac{V2}{V1-V2}$

Current

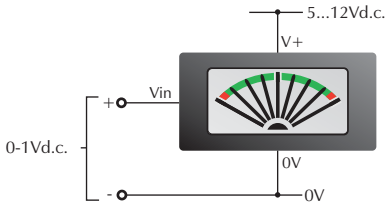


$Rs = \frac{1V}{I_{FSD}}$

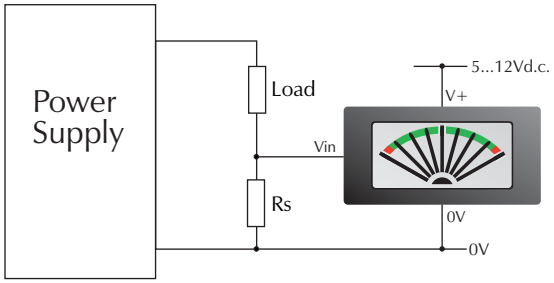
SAFETY

To comply with the Low Voltage Directive (LVD 93/68/EEC), input voltages to the module's pins must not exceed 60Vdc. The user must ensure that the incorporation of the unit 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).

VARIOUS OPERATING MODES

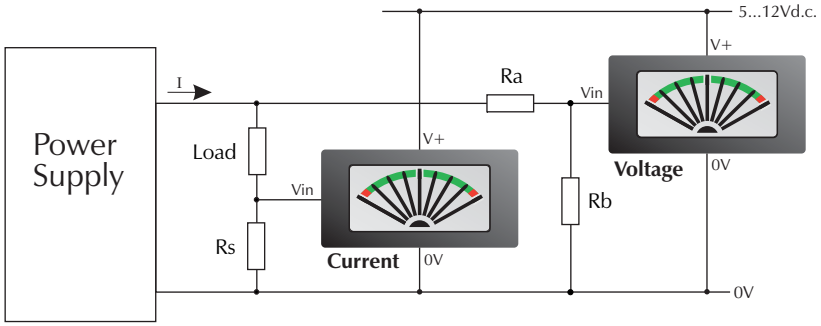


Measuring a voltage in the range 0 to 1V d.c.



Measuring a d.c. current.

$Rs = \frac{1V}{I}$



Simultaneous d.c. Voltage and Current Measurement.

$Rs = \frac{1V}{I}$