

OEM44 series 4.5 digit LCD voltmeter module

features

- 4.5 Digit 12.7mm character height LCD
- Low power consumption
- Economically priced
- Display hold standard
- Optional mounting bezel



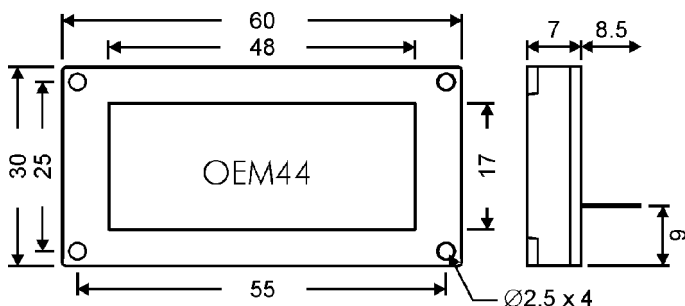
DESCRIPTION

The OEM44 is ideal for applications requiring the extra resolution of a 4.5 digit voltmeter but at an affordable price. These compact, fully featured modules, with their low power consumption are suitable for use in a wide range of portable applications.

This module has a neat "flat pack" case style that can either be sub-panel mounted or used with the optional MB44 fixing bezel. Display hold is provided as standard.

DIMENSIONS

mm



ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$

CHARACTERISTIC	MIN	TYP	MAX	UNIT
Power supply Voltage	4.65	5	5.35	V
Supply Current		3		mA
Input range (1:1 setting)	0		± 200	mV DC
Input range (10:1 setting)	0		± 2	V DC
Accuracy (1:1 setting)		$\pm 0.02 \pm 1$	$\pm 0.06 \pm 1$	%fs \pm counts
Accuracy (10:1 setting)		0.12 ± 1		%fs \pm counts
Linearity		± 1		counts
Input impedance	100			$\text{M}\Omega$
Temp Coefficient		50	100	ppm/ $^\circ\text{C}$
Low Battery Indication	3.55	3.65	3.75	V
Normal mode rejection		>30		dB @ 60Hz

OPERATING SPECIFICATION

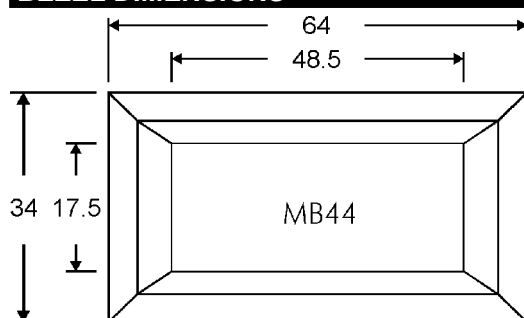
Operating voltage	5V DC \pm 7%
Operating temperature	0 to 40 $^\circ\text{C}$
Storage temperature	-20 to 70 $^\circ\text{C}$
Relative humidity	90%

MB44 OPTIONAL MOUNTING BEZEL



BEZEL DIMENSIONS

mm



Cut out 32.5 x 62.5

PIN FUNCTIONS

PIN	SYMBOL	DESCRIPTION
1	V+	+5V Power supply.
2	V-	Supply Ground.
3	INHI	200mV full scale input, if "INHI" is lower than "INLO" display will show -negative.
4	INLO	
5	DP1	Decimal point select. The decimal point will be shown if connected to DP and will be off if kept floating.
6	DP2	
7	DP3	
8	D4	Decimal point return
9	DP	
10	RNG	No connection required
11	HLD	Hold when high (V+), sample when low or floating
12	RFH	No connection required
13	RFL	No connection required

ORDERING INFORMATION

OEM44	4.5 digit flatpack voltmeter
MB44	Optional Mounting bezel

USER INSTRUCTIONS

The OEM44 is designed for +5V single rail supply. Incorrect supply will damage the module.

Apply the input signal between pin 3 (INHI) and pin 4 (INLO). This module has auto zeroing facility.

It is recommended to use this module with non-floating inputs i.e. connecting the low input signal pin (INLO) directly to supply ground (V-) pin.

The basic input range is 0-200mV. Over-range is indicated by blanking the four least significant digits and displaying a "1" in the most significant digit.

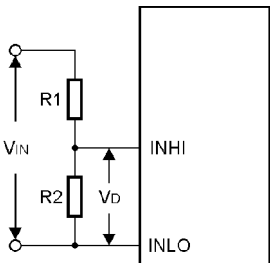
This module has built in display hold. To hold the present display reading, connect the HLD pin to V+. (or DP). For a continuously updated display, leave the HLD pin floating.

To activate a decimal point, connect the appropriate decimal point pin to DP.

This module has a 10:1 ranging facility. Connecting RNG to V+ or DP changes the input range from 200mV to 2V full scale.

APPLICATION CIRCUITS

DC VOLTAGE MEASUREMENT



To measure voltages greater than 200mV an attenuator is required.

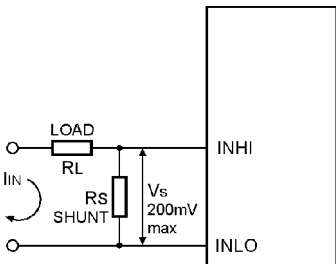
$$V_{IN} = V_D \times \frac{R1+R2}{R2} \quad V_D \text{ max. is } 199.99\text{mV}$$

EXAMPLES

V _{IN}	Display	V _D	R1	R2
2V	1.999V	199.9mV	1MΩ	110KΩ
10V	1500rpm	150mV	1MΩ	15KΩ

The input impedance becomes R1+R2. Choose accurate stable resistors. Typically, R1=1MΩ. 9MΩ is a practical upper limit.

DC CURRENT MEASUREMENT



$$\text{Shunt resistance } R_s = \frac{V_s}{I_{IN}} \Omega$$

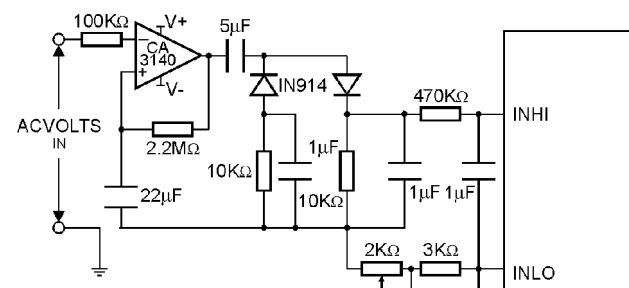
It is important to note the power dissipation in the shunt and choose resistor rating accordingly

$$P_s = \frac{V_s^2}{R_s} = I_{IN}^2 R_s \Omega$$

EXAMPLES

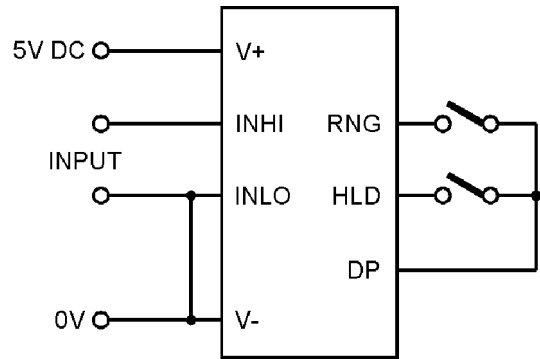
Current	R _s	P _s
200mA	1Ω	0.04W
2A	0.1Ω	0.4W

AC VOLTAGE MEASUREMENT

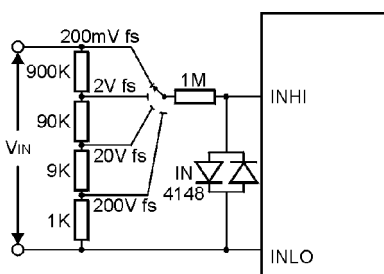


The meter can only measure DC. Use the above circuit to convert AC to DC. For voltages above 200mV AC, a potential divider is required before the converter circuit as shown in the "Voltage measurement" section above

CONNECTION DIAGRAM BASIC CONFIGURATION

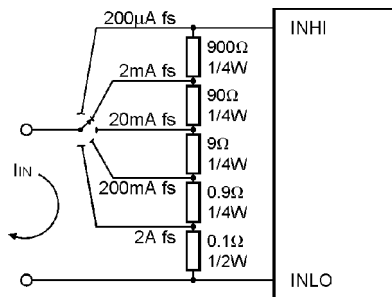


DC MULTI-RANGE VOLTAGE MEASUREMENT



For multi-range, use a 2 pole, 4 way rotary switch. 1 pole for range select and the other to connect the appropriate decimal point to V+

DC MULTI-RANGE CURRENT MEASUREMENT



For multi-range, use a 2 pole, 5 way rotary switch. 1 pole for range select and the other to connect the appropriate decimal point to V+