digital panel modules | user guide

OEM335A 3.5 digit LED voltmeter module

anders electronics

features

- Bright, red LED display
- Single 5V DC operation.
- 10.16mm digit height
- Decimal point selectable
- Self mountable.
- Single ended or differential input.

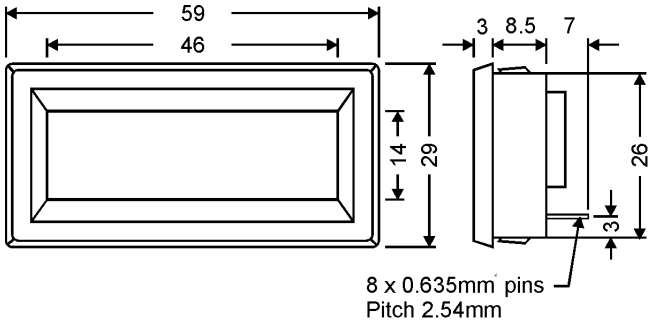
DESCRIPTION

The OEM335A is a complete digital voltmeter module in a very compact package incorporating a dual-slope analogue to digital converter, a 100mV reference with 200mV full scale input sensitivity.
The large sized LED makes the module easily readable from distance away. Auto-zeroing is provided by the circuit itself, so no zero adjustment is required. The module also has input polarity and over-range indication.

ELECTRICAL CHARACTERISTICS T_A=25°C

CHARACTERISTIC	MIN	TYP	MAX	UNIT
Power supply Voltage	4.75	5	5.25	V
Power Supply Current			180	mA
Sampling Rate		2.5		Reading/sec.
Accuracy		0.1 ±1		% ± digits
Input Impedance	100			MΩ
Input leakage Current		1	10	PA
Temperature Coefficient		100		PPM/°C

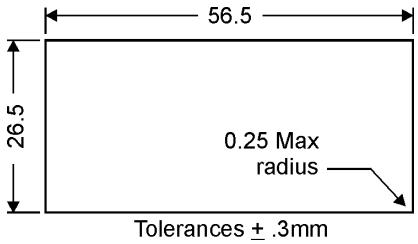
DIMENSIONS mm



PIN FUNCTIONS

PIN	SYMBOL	DESCRIPTION
1	V+	+5V Power supply.
2	GND	Ground (0V for power supply).
3	IN HI	Signal input terminals. If potential on INHI is lower than INLO, display will show negative.
4	IN LO	
5	DP1	Decimal point select. The decimal point will be shown if connected to DP.com and will be off if kept floating.
6	DP2	
7	DP3	
8	DP.com	Decimal point return

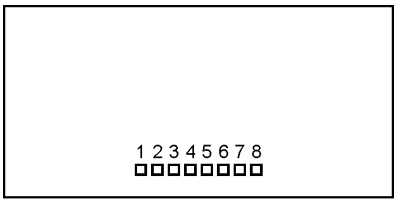
PANEL CUT OUT



OPERATING SPECIFICATION

Operating voltage	5V DC ± 5%
Operating temperature	0 to 50°C
Storage temperature	-10 to 70°C
Relative humidity	80%

MODULE VIEW FROM REAR



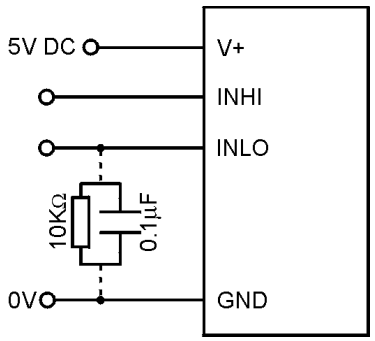
ORDERING INFORMATION

OEM335A	3.5 Digit, 200mV LCD voltmeter module
LM201	Connector and cable

USER INSTRUCTIONS

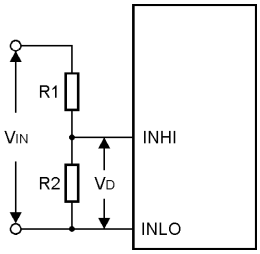
The OEM335A is designed for +5V single rail supply. Incorrect supply will damage the module.
Apply the input signal between pin 3 (INHI) and pin 4 (INLO). The input range is 0 - 199.9mV.
Over range is indicated by illuminating a "1" in the most significant digit and blanking the other digits.
It is recommended to use this module with floating inputs i.e. the low input signal (INLO) must be isolated from the power supply ground (GND). Where (INLO) must be referenced to the power supply, connect via a 10KΩ resistor and a 0.1μF capacitor as shown opposite.
To activate a decimal point, connect the appropriate decimal point pin to DPcom.

CONNECTION DIAGRAM BASIC CONFIGURATION



APPLICATION CIRCUITS

DC VOLTAGE MEASUREMENT



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

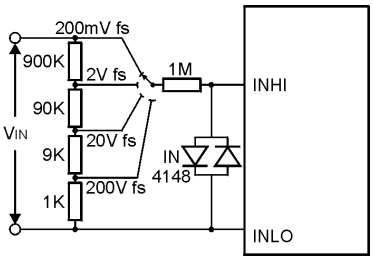
$V_{IN}=V_D \times \frac{R1+R2}{R2}$ V_D max. is 199.99mV

EXAMPLES

VIN	Display	VD	R1	R2
2V	1.999V	199.9mV	1MΩ	110KΩ
10V	1500rpm	150mV	1MΩ	15KΩ

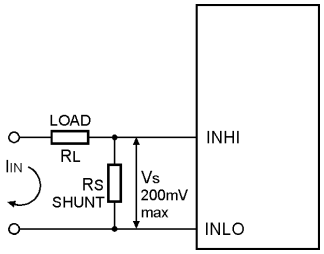
The input impedance becomes R1+R2. Choose accurate stable resistors. Typically, R1=1MΩ. 9MΩ is a practical upper limit.

MULTI-RANGE DC 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 CURRENT MEASUREMENT



Shunt resistance $R_S = \frac{Vs}{I_{IN}}\ \Omega$

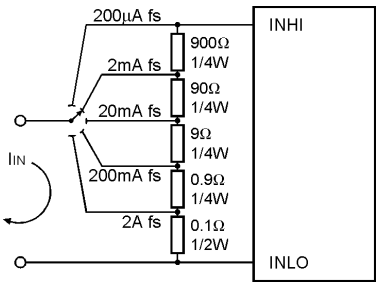
It is important to note the power dissipation in the shunt and choose resistor rating accordingly

$P_S = \frac{Vs^2}{I_{IN}} = I_{IN}^2 R_S\ \Omega$

EXAMPLES

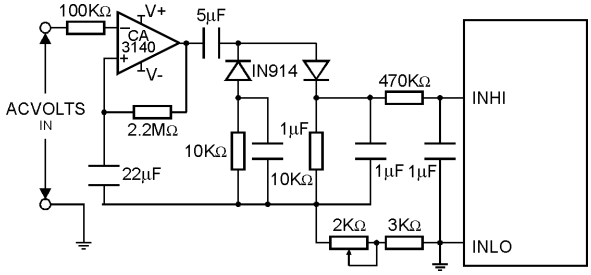
Current	RS	PS
200mA	1Ω	0.04W
2A	0.1Ω	0.4W

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+

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

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