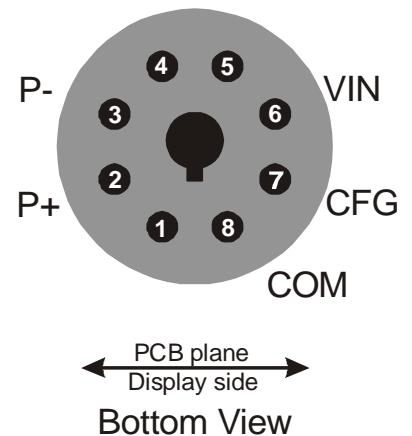
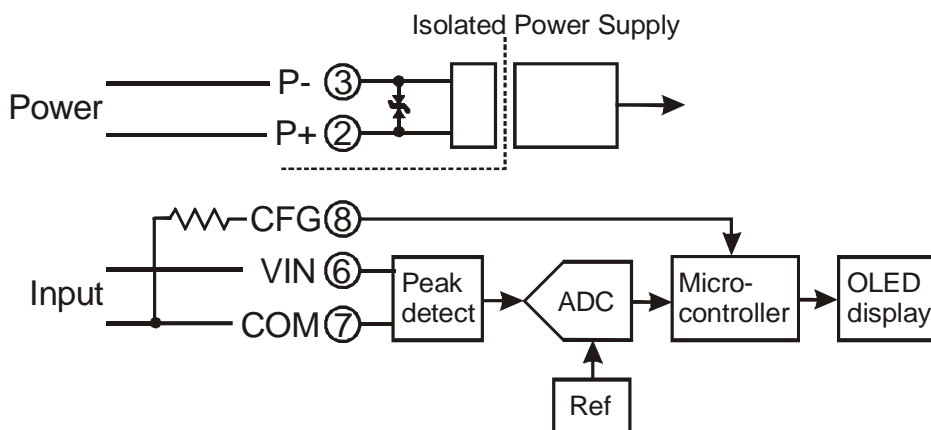




Audio Level Meter

- Convenient octal glass tube package
- 128-segment bar graph
- 1V RMS full-scale input
 - Easily scaled using a resistor divider for dBu/dBM, watts/8Ω, or other units
- Peak responding
- Power supply isolated from input up to 1500V
- Programmable units display (dB, 1-10, 1-100, blank) and scale (log or linear)
- Applications:
 - VU meter
 - Audio power amp output meter

Functional Block Diagram



Pin Connections

PIN	NAME	FUNCTION
1		No connection
2	P+	AC or + DC power input
3	P-	AC or - DC power input
4		No connection
5		No connection
6	VIN	Measurement input
7	CFG	Configuration pin
8	VCOM	Measurement common

Absolute Maximum Ratings

SYMBOL	PARAMETER	MIN	MAX	UNIT
V_{IN}	Measurement input voltage		±5	V
V_P	Power input voltage		15	VAC
			20	VDC

Electrical Characteristics

SYMBOL	PARAMETER	CONDITIONS/COMMENTS	MIN	TYP	MAX	UNIT
$V_{IN(FS)}$	Full-scale input voltage			1.00		VRMS
ΔV_{IN}	Error	<i>Total error is sum of both errors</i>	-1 -2		+1 +2	% bar
V_{ZERO}	Zero reading	VIN connected to VCOM	0	0	1	bar
$R_{ADS(ON)}$	Isolation voltage	Pins 6,7,8 to 2,3			1500	V
V_P	Power input voltage		3.3 4.5		15 20	VAC VDC
I_P	Power input current	Worst-case display, $V_P = 5$ VDC	30	50	60	mA
Z_{IN}	Measurement input impedance	VIN < 0V VIN > 0V		20 60		k Ω

Dimensions: Standard intermediate octal base - 33.5mm diameter.
Seated height 75mm, bulb diameter 29mm.

Description and Application

The SiTubes ALM is a peak-responding audio level meter, mounted in a glass octal tube envelope. It has a 128-segment bar graph OLED display that can be seen through the glass. It has a fixed input voltage range of 0-1V, and can be easily interfaced with resistor dividers to measure higher voltages or power output.

The SiTubes ALM integrates a truly isolated power supply, so the measurement ground can float as much as 1500VDC above or below the power source. This allows isolated measurements and measurement of a balanced, floating line. The power source can be AC or DC, and only about 40mA of current is required.

The meter scaling (log or linear) as well as the legend displayed can be programmed by the user. The display is configured by connecting an external resistor between pins 7 and 8. Keep in mind that regardless of the legend and scaling, the full-scale input to the ALM is always 1.0V RMS.

The display appearance options and their required programming resistors are shown in the table below:

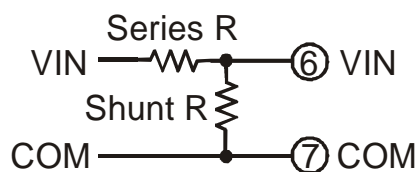
Appearance (0.5V RMS sine input)									
	Legend	+3 dB	0 – 10	none	0 dB	0 – 10	0 – 100	none	
	Scaling	Linear	Linear	Linear	Linear	Log	Log	Log	Log
	Resistor	0 (short)	1.5 k Ω	2.7 k Ω	3.9 k Ω	6.2 k Ω	8.2 k Ω	12 k Ω	open

Note that the configuration resistor is only read at power-up. (Dark areas on the display are an artifact of the photo, not representative of the actual appearance).

Customized legends and scales are possible. Minimum quantity and/or engineering charges may apply. Contact SiTubes for more information.

Full scale corresponds to the peak value of a 1V RMS sine wave.

You can easily scale the reading to other units by inserting an appropriate resistor divider in series with the measurement input. The input resistance of the ALM is 20k Ω for input voltages below 0V, and 60k Ω for voltages above 0V. For accurate measurement of both positive and negative peaks, a shunt resistor of 1k Ω is recommended.



Some setup examples for common applications are listed below:

Measurement	Full scale voltage	Series R	Shunt R
+3 dBU full scale	1.0941 V RMS	0 (short)	open
1 Watt / 8 Ω full scale	2.828 V RMS	1.82 k Ω	1 k Ω
10 Watts / 8 Ω full scale	8.944 V RMS	7.87 k Ω	1 k Ω
100 Watts / 8 Ω full scale	28.28 V RMS	27.4 k Ω	1 k Ω