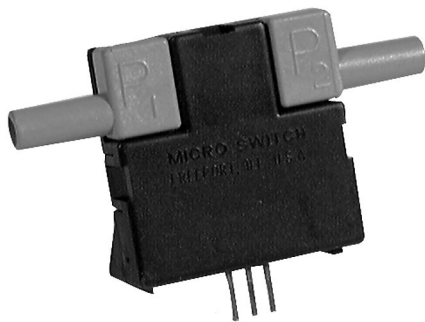


Airflow Sensors
Microbridge Mass Airflow/Amplified

AWM3000 Series



FEATURES

- Laser trimmed for improved sensor interchangeability
- Flow sensing up to 1.0 SLPM
- Low differential pressure sensing

Like the AWM2000 Series, the dual Wheatstone bridges control airflow measurement. The AWM3000 Series is amplified; therefore, it can be used to increase the gain and to introduce voltage offsets to the sensor output. The schematic in Figure 3 depicts the amplification circuitry on board the sensor. Also, the heater control circuit (see Figure 1) and the sensing bridge supply circuit (see Figure 2) are on board the package.

Figure 1
Heater control circuit

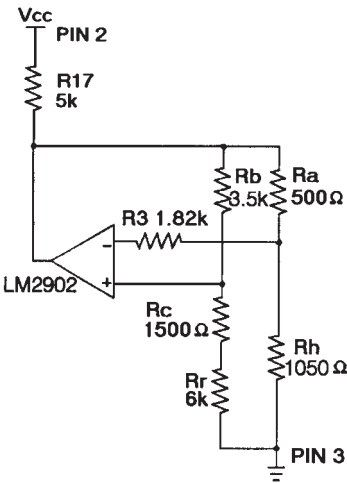


Figure 2
Sensing bridge supply circuit

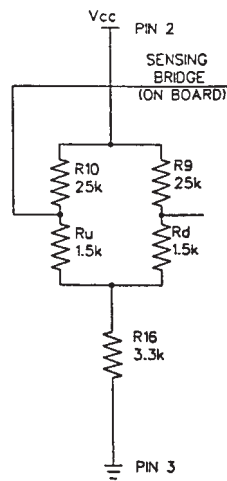
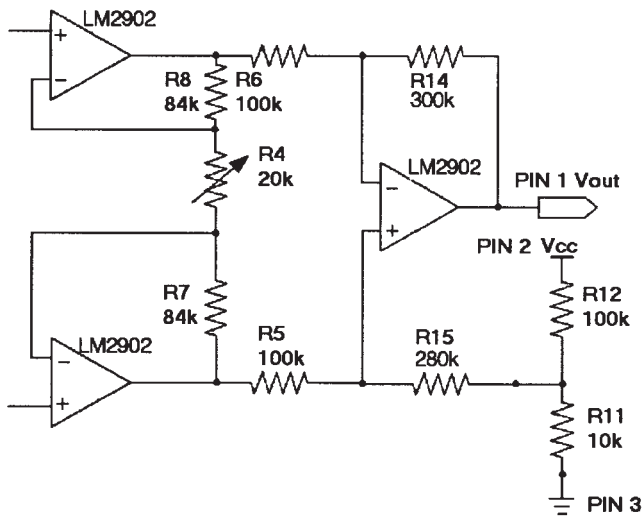


Figure 3
Differential instrumentation amplifier circuit



Airflow

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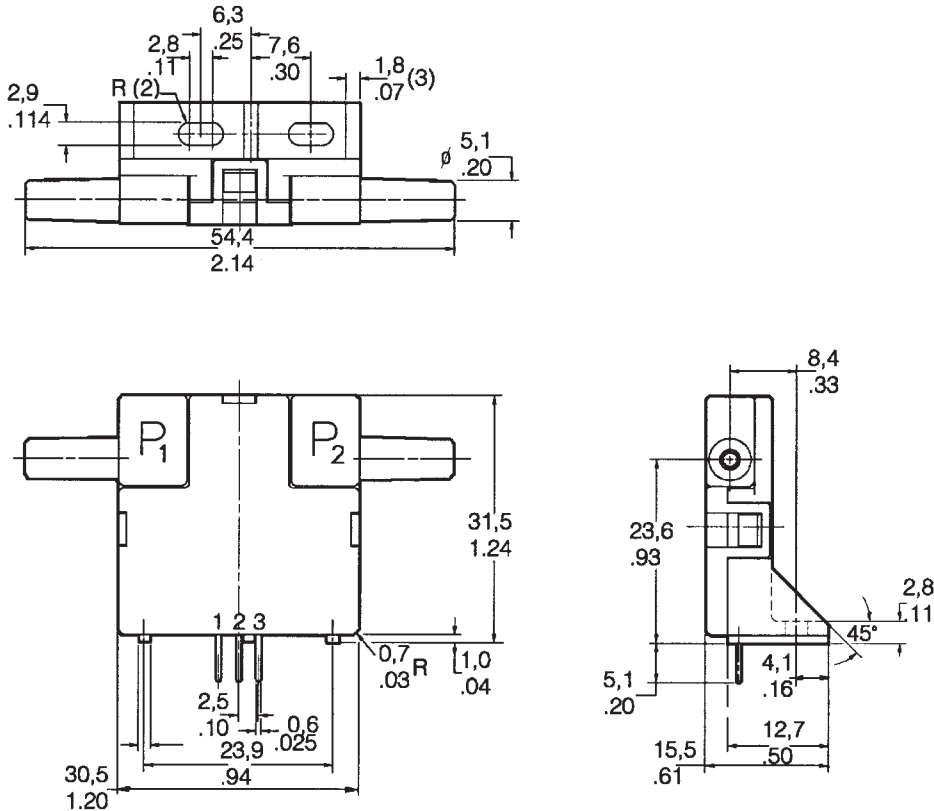
AWM3000 Series

AWM3000 SERIES ORDER GUIDE (Performance Characteristics @ 10.01 ±0.01 VDC, 25°C)

Catalog Listings	AWM3100V	AWM3150V	AWM3200V	AWM3300V
Flow Range (Full Scale)	+200 sccm	+30 sccm		+1000 sccm
Pressure Range (See Application Note 1)			+2.0" H ₂ O (5 mBar)	
Output Voltage @ Trim Point	5 VDC @ 200 sccm	3.4 VDC @ 25 sccm	5 VDC @ 2" H ₂ O	5 VDC @ 1000 sccm
Null Voltage	1.00 ±0.05 VDC	1.00 ±0.10 VDC	1.00 ±0.08 VDC	1.00 ±0.10 VDC
Null Voltage Shift, Typ. +25° to -25°C, 25° to +85°C	±25 mV	±100 mV	±25 mV	±25 mV
Output Voltage Shift, Max. +25° to -25°C +25° to +85°C	-4% Reading +4% Reading	±5% Reading ±5% Reading	+24% Reading (Note 3) -24% Reading	-5% Reading +5% Reading
Repeatability & Hysteresis, Max.	±0.50% Reading	±1% Reading	±0.50% Reading	±1% Reading
	Min.	Typ.	Max.	
Excitation VDC (Note 2)	8.0	10±0.01	15	
Power Consumption (mW)	—	50	60	
Response Time (msec) (Note 1)	—	1.0	3.0	
Common Mode Pressure (psi)	—	—	25	
Temperature Range	Operating: -25° to +85°C (-13° to +185°F); Storage: -40° to +90°C (-40° to +194°F)			
Termination	2,54 mm (.100") centers, 0,635 mm (0.025") square			
Weight (grams)	10.8			
Shock Rating	100 g peak (5 drops, 6 axes)			

- Notes:
- 1. Initial warm-up time for signal conditioned circuitry is 1 minute max.
 - 2. Output Voltage is ratiometric to supply voltage.
 - 3. Temperature shifts when sensing differential pressure correlates to the density change of the gas over temperature. (See Application Note 1.)
 - 4. Maximum allowable rate of flow change to prevent damage: 5 SLPM/1 sec.

MOUNTING DIMENSIONS (for reference only)



Note: Positive flow direction is defined as proceeding from Port 1 (P1) to Port 2 (P2) and results in positive output. Do not exert a force greater than 4.54kg (10 lbs.) in any direction.