

Interactive Catalog Replaces Catalog Pages

Honeywell Sensing and Control has replaced the PDF product catalog with the new **Interactive Catalog**. The **Interactive Catalog** is a power search tool that makes it easier to find product information. It includes more installation, application, and technical information than ever before.



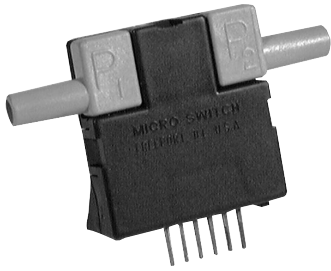
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Interactive Catalog.**

Sensing and Control
Honeywell Inc.
11 West Spring Street
Freeport, Illinois 61032



Airflow Sensors

Microbridge Mass Airflow/Unamplified



FEATURES

- Bidirectional sensing capability
- Actual mass air flow sensing
- Low differential pressure sensing

The AWM2000 Series microbridge mass airflow sensor is a passive device comprised of two Wheatstone bridges. The heater control circuit in Figure 1 is required for operation per specifications. The sensing bridge supply circuit in Figure 2 is also required for operation per specifications. These two circuits are **not on board** the package and must be supplied in the application. The differential amplifier in Figure 3 is a useful interface for the sensing bridge. It can be used to introduce the gain and to introduce voltage offsets to the sensor output as referenced in Equation 1.

Note: For applications sensing hydrogen or helium, see Application Note 3, page 131.

Figure 1
Heater Control Circuit

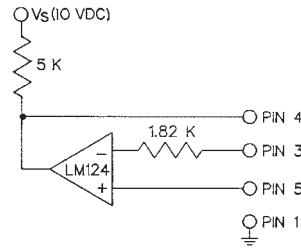


Figure 2
Sensing Bridge Supply Circuit

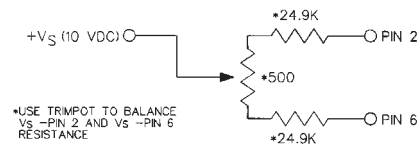
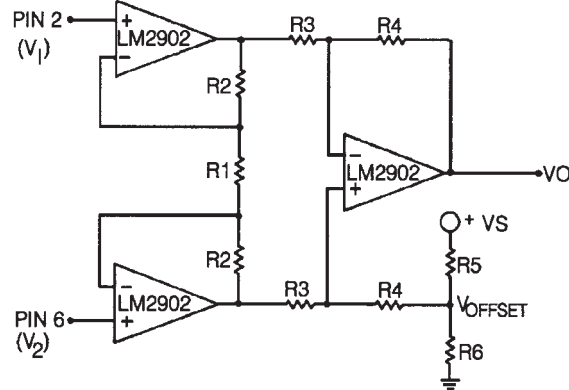


Figure 3
Differential Instrumentation Amplifier Circuit



Equation 1:

$$V_o = \left(\frac{2R_2 + R_1}{R_1} \right) \left(\frac{R_1}{R_3} \right) (V_2 - V_1) + V_{\text{offset}}$$

$$\text{where } V_{\text{offset}} = V_s \left(\frac{R_6}{R_5 + R_6} \right)$$

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AWM2000 Series

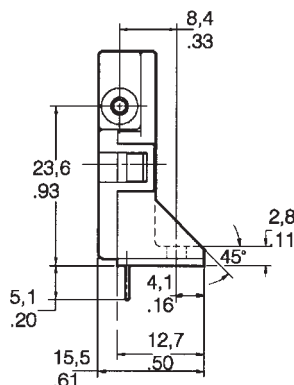
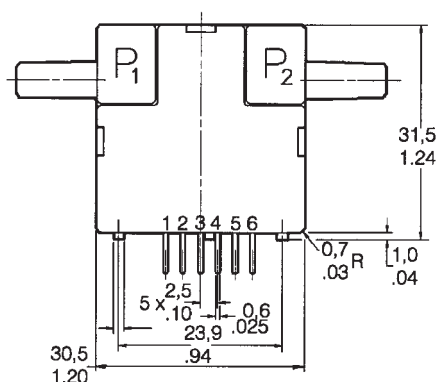
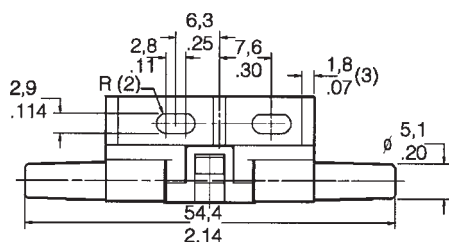
AWM2000 SERIES ORDER GUIDE (Performance Characteristics @ 10.01 ±0.01 VDC, 25°C)

Catalog Listings	AWM2100V	AWM2150V	AWM2200V	AWM2300V
Flow Range (Full Scale)	±200 sccm	±30 sccm		±1000 sccm
Pressure Range (See Application Note #1)			±4.0" H ₂ O (10 mBar)	
Output Voltage @ Trim Point	30 mV @ 100 sccm	11.8 mV @ 25 sccm	20 mV @ 2" H ₂ O	50 mV @ 650 sccm
Null Voltage Shift, Typ. +25° to -25°C, +25° to 85°C	±0.20 mV	±0.20 mV	±0.20 mV	±0.20 mV
Output Voltage Shift, Max. +25° to -25°C +25° to +85°C	+2.5% Reading -2.5% Reading	+5% Reading -5% Reading	+22% Reading (Note 2) -22% Reading	+5% Reading -5% Reading
Repeatability & Hysteresis, Max.	±0.35% Reading	±0.35% Reading	±0.35% Reading	±1% Reading
	Min.	Typ.	Max.	
Excitation (VDC) (Note 1)	8.0	10±0.01	15	
Power Consumption (mW)	—	30	50	
Null Voltage (mV)	-1.0	0.0	+1.0	
Response Time (msec)	—	1.0	3.0	
Common Mode Pressure (psi)	—	—	25	
Sensor Resistance (kΩ) Pin 2-Pin 1, Pin 6-Pin 1	—	5	—	
Sensor Current (mA) Pin 2-Pin 1, Pin 6-Pin 1	—	—	0.6	
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:

- Output Voltage is ratiometric to supply voltage.
- Temperature shifts when sensing differential pressure correlates to the density change of the gas over temperature. See Application Note 1.
- Maximum allowable rate of flow change to prevent damage: 5.0 SLPM/1.0 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 (Pin 6 > Pin 2). Negative flow direction is defined conversely and results in negative output (Pin 6 < Pin 2). Do not exert a force greater than 4.54 kg (10 lbs.) in any direction.

Airflow