Honeywell

Honeywell Sensing and Control

AWM2300V

Airflow Sensor, Signal Conditioning: Unamplified (mV); Flow/Pressure Range: ±1000 sccm (1.0 SLPM); Port Style: Straight

Actual product appearance may vary.

Features

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

Potential Applications

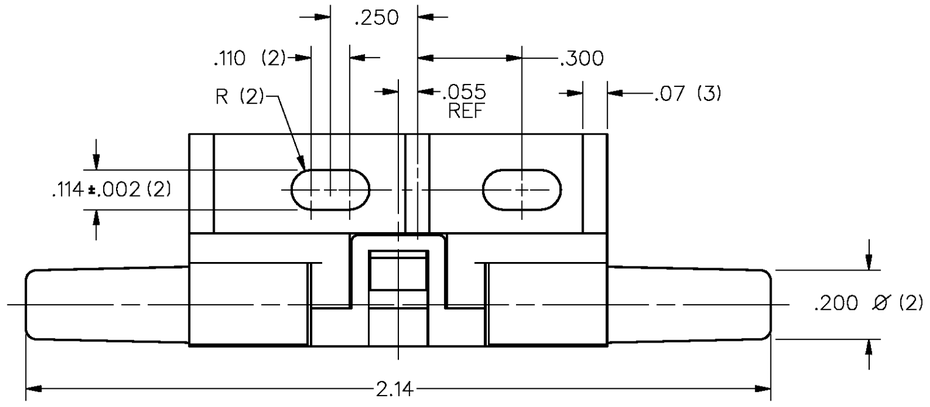
- Damper control for heating, ventilation, and air conditioning systems
- Gas analyzers
- Low vacuum control
- Process control
- Medical respirators and ventilators
- Oxygen concentrators
- Leak detection equipment
- Vent hoods
- Anesthesia control
- Gas metering
- Gas chromatography

Description

The AWM2000 Series microbridge mass airflow sensor is a passive device comprised of two Wheatstone bridges. The heater control circuit is required for operation per specifications. The sensing bridge supply circuit 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 is a useful interface for the sensing bridge. It can be used to introduce gain and to voltage offsets to the sensor output.

CAUTION
PRODUCT DAMAGE
AWM Series Microbridge Mass Airflow Sensors are not designed to sense liquid flow and will be damaged by liquid flow through the sensor.
Failure to comply with these instructions could result in product damage.

Product Specifications	
Signal Conditioning	Unamplified (mV)
Flow/Pressure Range	±1000 sccm (1 SLPM)
Output Voltage @ Trim Point	50.0 mV dc @ 650 sccm
Port Style	Straight
Series Name	AWM2000
Null Shift over Temperature	±0.20 mV dc
Output Shift over Temperature	±5% Reading
Maximum change in flow rate	5.0 SLPM/s
Max. Repeatability & Hysteresis Error	±1% Reading
Null Offset	±1 mV dc
Response Time	1 ms typ., 3 ms max.
Supply Voltage	8.0 Vdc min., 10.0 Vdc typ., 15.0 Vdc max.
Maximum Common Mode Pressure	25.0 psi
Power Consumption	30 mW typ., 50 mW max.
Operating Temperature Range	-25 °C to 85 °C [-13 °F to 185 °F]
Storage Temperature Range	-40 °C to 90 °C [-40 °F to 194 °F]
Media Compatibility	Dry gas only
Sensor Resistance	5.0 kOhm
Sensor Current	0.6 mA max.
Weight	10.8 g
Shock	100 g peak (5 drops, 6 axes)
Availability	Global
UNSPSC Code	411121
UNSPSC Commodity	411121 Transducers

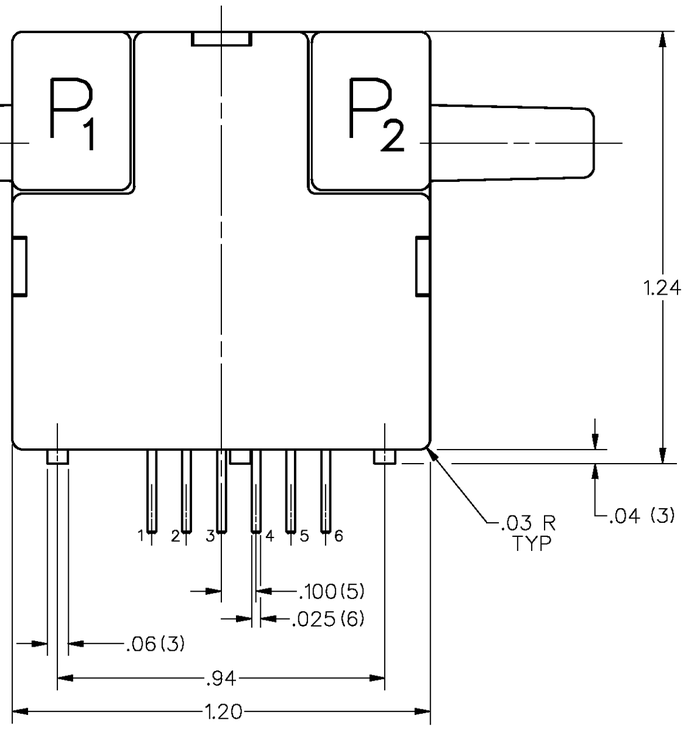


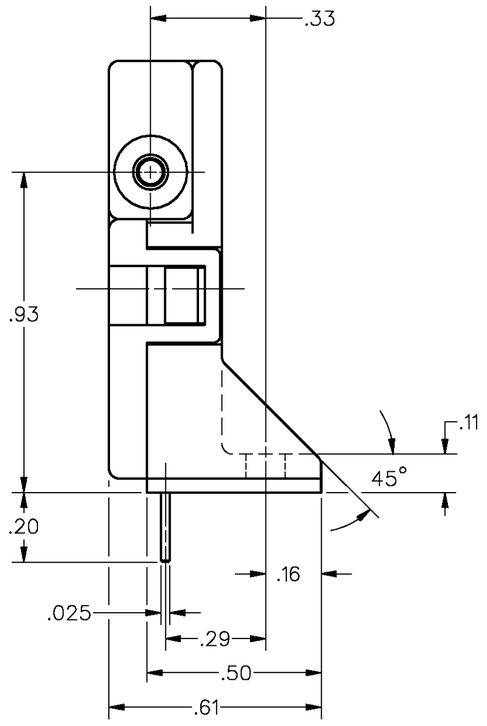
SPECIFICATIONS:	AWM2300V
RECOMMENDED EXCITATION (USING TEST CIRCUIT) **8VDC MIN**	10.00±.01VDC (15.00 VDC MAX)
POWER CONSUMPTION	30mW TYP
OUTPUT VOLTAGE TRIM POINT	50mV @ 650 sccm
NULL VOLTAGE	0.0±1.0mV
NULL VOLTAGE SHIFT (−25°C TO +85°C)	±.14mV **TYP**
OUTPUT VOLTAGE SHIFT (+25°C TO −25°C) (+25°C TO +85°C)	+5% READING MAX −5% READING MAX
REPEATABILITY & HYSTERESIS	±1.0% READING MAX
RESPONSE TIME	3.0 msec MAX
OPERATING TEMPERATURE RANGE	−25°C TO +85°C
STORAGE TEMPERATURE RANGE	−40°C TO +90°C
TERMINATION (ON .100 CENTERS)	0.025 SQ. IN.
WEIGHT	10.8 GRAMS
SHOCK RATING (5 DROPS, EACH OF 6 AXES)	100G PEAK
OVERPRESSURE	25 psi MAX
SENSOR RESISTANCE (PIN 2−PIN 1, PIN 6−PIN 1)	5 K−OHMS (TYP)
SENSOR CURRENT (PIN 2−PIN 1, PIN 6−PIN 1)	0.6 mA (MAX)

AWM2300V
OUTPUT FLOW VS. INTERCHANGEABILITY

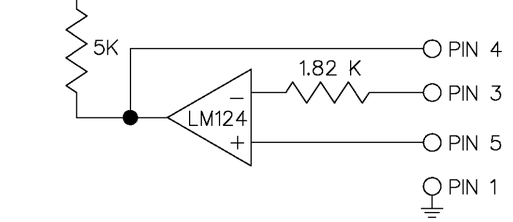
FLOW sccm	NOMINAL (mV)	TOL. (±mV)
1000	55.50	3.70
800	52.90	3.5
650	50.00	2.50
400	40.50	3.00
200	29.20	3.20
0	0.00	1.0
−200	−28.90	15.00
−400	−41.20	26.00
−600	−48.20	29.50
−800	−52.50	32.50
−1000	−55.00	36.00

NOTES
1 − POSITIVE FLOW DIRECTION IS DEFINED AS PROCEEDING FROM P1 TO 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)
2 − LASER TRIMMED FOR 50.00mV AT 650 Sccm

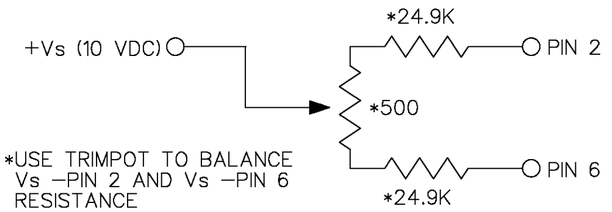




HEATER CONTROL CIRCUIT



SENSING BRIDGE SUPPLY CIRCUIT



*USE TRIMPOT TO BALANCE Vs −PIN 2 AND Vs −PIN 6 RESISTANCE

DRAWING NUMBER AWM2300V
ISSUE 7 M PAGE 1 OF 1
RELEASE NO. PR−17967 REPLACES X87416−AW
RASTER DRAWN J A S 12 OCT 88 CHECK J A S 11 JAN 90 CHECK

REVISIONS

A	PR17967	K A G 9 JAN 90	
B	C074438	J A F 6 JUL 93	
C	C083279	G J W 9 SEP 96	
D	C083694	J A K 29 APR 97	CHECK
E	C094375	TSM 23 MAR 99	
F	201366	C S L 22 SEP 00	

MASTER REDUCED

MICRO SWITCH a Honeywell Division
FED. MFG. CODE 81829

MASS AIRFLOW SENSOR (1000 Sccm)

CATALOG LISTING
AWM2300V

THIRD ANGLE PROJECTION
SCALE 3 : 1
DO NOT SCALE PRINT

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE

ONE PLACE	(.0)	±.030
TWO PLACES	(.00)	±.015
THREE PLACES	(.000)	±.005
ANGLES		±

WEIGHT