

## Honeywell Sensing and Control

## AWM5101VN



**Airflow Sensor, Signal Conditioning:**  
**Amplified; Flow/Pressure Range: 0**  
**SLPM to 5.0 SLPM; Port Style:**  
**Threaded, ¼ NPT**

*Actual product appearance may vary.*

### Features

- Linear voltage output
- Venturi design
- Remote mounting capability
- Active laser trimming improves interchangeability
- Separate gas calibration types:
  - Ar (argon)
  - N<sub>2</sub> (nitrogen) or
  - CO<sub>2</sub> (carbon dioxide)

### 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

#### In-Line Flow Measurement

AWM5000 Series Microbridge Mass Airflow Sensors feature a Venturi type flow housing. They measure flow as high as 20 standard liters per minute (SLPM) while inducing a maximum pressure drop of 2.25" H<sub>2</sub>O. The microbridge chip is in direct contact with the flow stream, greatly reducing error possibilities due to orifice or bypass channel clogging.

#### Rugged, Versatile Package

The rugged plastic package has been designed to withstand common mode pressures up to 50 psi, and the small sensing element allows 100 g of shock without compromising performance. The included "AMP" compatible connector provides reliable connection in demanding applications.

#### On-board Signal Conditioning

Each AWM5000 sensor contains circuitry which performs amplification, linearization, temperature compensation, and gas calibration. A 1 to 5 Vdc linear output is possible for all listings regardless of flow range (5, 10, 15, or 20 SLPM) or calibration gas (nitrogen, carbon dioxide, nitrous oxide, or argon). All calibration is performed by active laser

#### CAUTION

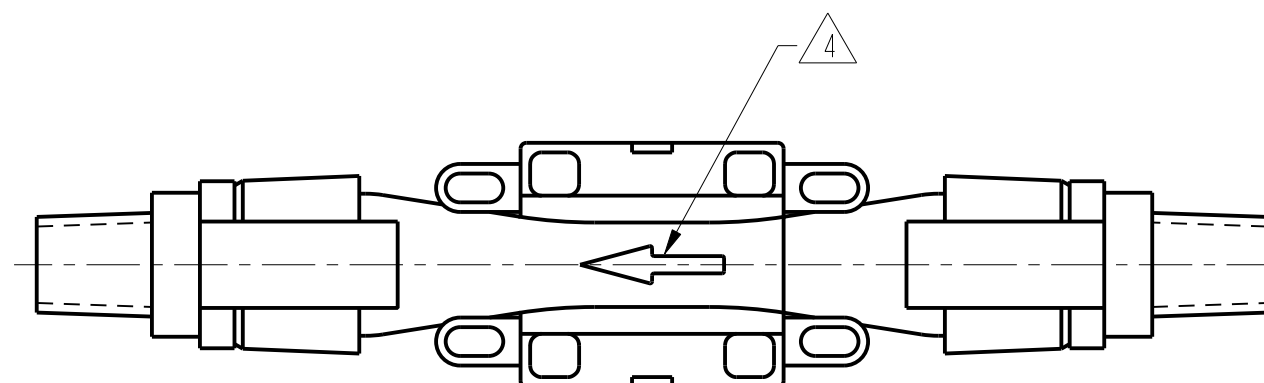
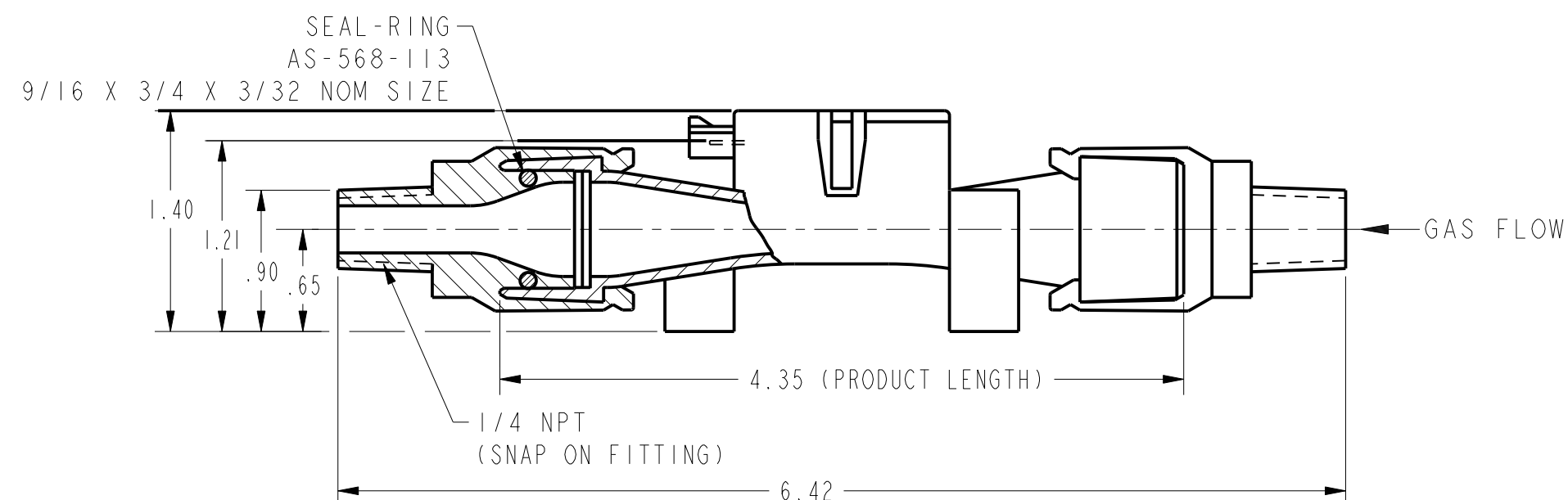
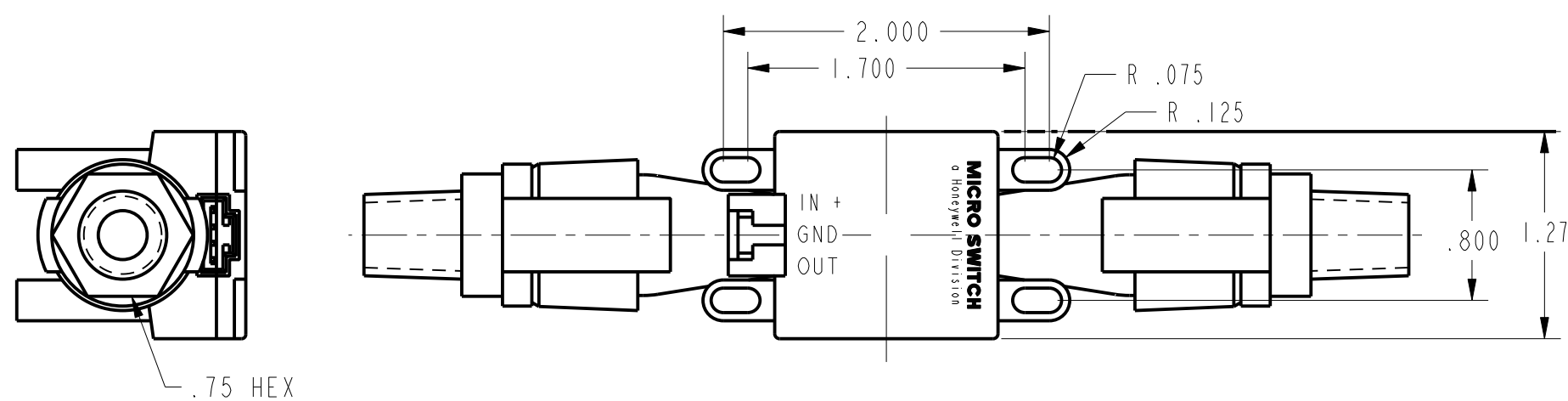
#### PRODUCT DAMAGE

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.**

### Supporting Documentation

Product Specifications	
Signal Conditioning	Amplified
Flow/Pressure Range	0 SLPM to 5.0 SLPM
Output Voltage @ Trim Point	5.0 Vdc @ 5SLPM
Port Style	1/4 in - 18 NPT
Series Name	AWM5000
Null Shift over Temperature	±0.050 Vdc typ., ±0.20 Vdc max.
Output Shift over Temperature	±7 % Reading
Maximum change in flow rate	5.0 SLPM/s
Max. Repeatability & Hysteresis Error	±0.50% Reading
Null Offset	0.95 Vdc min., 1 Vdc typ., 1.05 Vdc max.
Response Time	60 ms max.
Supply Voltage	8.0 Vdc min., 10.0 Vdc typ., 15.0 Vdc max.
Maximum Common Mode Pressure	50.0 psi
Power Consumption	100 mW max.
Operating Temperature Range	-20 °C to 70 °C [-4 °F to 158 °F]
Storage Temperature Range	-20 °C to 70 °C [-4 °F to 158 °F]
Media Compatibility	Dry gas only
Weight	60 g
Shock	100 g peak 6 ms half-sine (3 drops, each direction of 3 axes)
Availability	Global
Comment	Nitrogen calibration gas. This calibration is identical to using oxygen or air as calibration gas.
UNSPSC Code	411121
UNSPSC Commodity	411121 Transducers



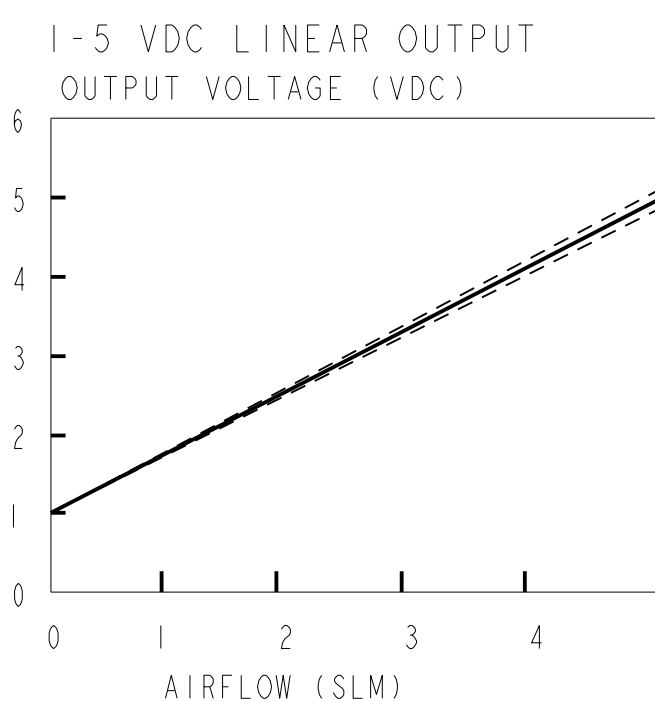
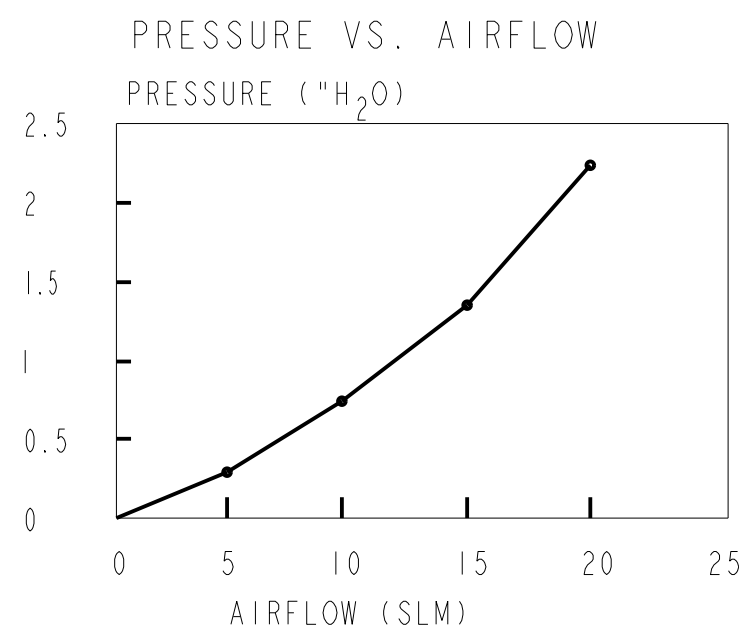
OUTPUT CONNECTIONS  
 PIN 1 + SUPPLY VOLTAGE  
 PIN 2 GROUND  
 PIN 3 NO CONNECTION  
 PIN 4 OUTPUT VOLTAGE

SPECIFICATIONS

RECOMMENDED POWER SUPPLY $\Delta 1$	10.00 $\pm$ .01 VDC
MINIMUM POWER SUPPLY	8.0 VDC
MAXIMUM POWER SUPPLY	15 VDC
POWER CONSUMPTION	100mW MAX
OUTPUT TYPE	LINEAR, 1 TO 5 VDC
CALIBRATION GAS	NITROGEN
GAS FLOW RANGE *	0-5 SLM *
OUTPUT @ LASER TRIM POINT	5 VDC @ FULL SCALE FLOW
DIFFERENTIAL PRESSURE @ FULL SCALE	SEE PRESSURE VS. AIRFLOW CHART
NULL OUTPUT	1.00 $\pm$ .05 VDC
NULL OUTPUT SHIFT, 0 TO +50°C	$\pm$ .050 VDC TYP, $\pm$ .100 VDC MAX
FULL SCALE OUTPUT SHIFT, 0 TO +25°C, +25 TO 50°C	7% READING MAX
LINEARITY ERROR $\Delta 2$	$\pm$ 3.0% READING
REPEATABILITY & HYSTERESIS	$\pm$ 0.5% F.S.O.
RESPONSE TIME	60.0 mSEC MAX
STORAGE TEMPERATURE RANGE	-20° TO 70°C
OPERATION TEMPERATURE RANGE $\Delta 5$	0° TO 50°C
TERMINATION (.100 CENTERS)	.025 SQUARE
CONNECTOR (4 PIN RECEPTACLE) $\Delta 3$	AMP (103956-3)
WEIGHT	30 GRAMS (2.12OZ)
SHOCK RATING	100 g PEAK, 6 mSEC HALF-SINE (3 DROPS EACH DIRECTION OF 3 AXES)
OVERPRESSURE	50 PSI MAX
LEAK RATE, MAX	0.1 PSI/MIN AT STATIC CONDITION

NOTES

- $\Delta 1$  CANNOT GUARANTEE CALIBRATION AT SUPPLY VOLTAGES OTHER THAN 10.00  $\pm$  .01 VDC
- $\Delta 2$  LINEARITY SPECIFICATION APPLIES FROM 2 TO 100% FULL SCALE OF GAS FLOW RANGE, AND DOES NOT APPLY TO NULL OUTPUT AT 0 SLM \*
- $\Delta 3$  SUPPLIED IN STRIP FORM. OTHER STRIP FORM RECEPTACLES ARE AVAILABLE, AS WELL AS VARIOUS TOOLS TO ASSEMBLE RECEPTACLES IN STRIP FORM. INDIVIDUAL RECEPTACLE ASSEMBLIES ARE ALSO AVAILABLE FROM AMP
- $\Delta 4$  MOLDED-IN ARROW DESIGNATES GAS FLOW DIRECTION
- \* SLM DENOTES STANDARD LITERS PER MINUTE WHICH IS A FLOW MEASUREMENT REFERENCED TO STANDARD CONDITIONS OF 0°C, 760 TORR (SEA LEVEL), 50% RH
- $\Delta 5$  TEMPERATURE TRANSITIONS 1.66°C/MINUTE MAXIMUM WHILE IN OPERATION



$\pm$  3% READING  
 — MEAN  
 - - - MIN  
 - - - MAX

THIRD ANGLE PROJECTION		
SCALE FULL		
DO NOT SCALE PRINT		
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE		
ONE PLACE	(.0)	$\pm$ .030
TWO PLACES	(.00)	$\pm$ .015
THREE PLACES	(.000)	$\pm$ .005
ANGLES		$\pm$
WEIGHT		

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**MASS AIRFLOW SENSOR**

**AWM5101VN**

ANSI Y14.5M-1982 APPLIES

FED. MFG. CODE 91929

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