

RHEOTHERM®

FLOW INSTRUMENTS

Duct Flow Meters for Air and Process Gas



- Accurate mass flow
- No moving parts
- Wide rangeability
- Maintenance-free
- Easy installation

Rheotherm mass flow sensing insertion probes for air and most other non-condensing gases, including corrosive and explosive gases, are easy to install and provide long-term service with little or no maintenance.

Common uses include vent air, stack gas, and digester gas.

The output units can be in mass flow, standard volumetric flow, or velocity. Options for hazardous (classified) locations are available. The stainless steel construction and lack of moving parts make it ideal for rugged industrial environments.



Electronics can be installed remotely from sensors.

Thermal Mass Method

Our insertion flow sensors have two stainless steel flow sensing tips welded to the probe shaft. One tip has a heated RTD in it and the other an unheated RTD. The temperature differential between the two RTDs provides the primary flow signal: at high flow rates the differential is lower as flow removes more heat, and at low flow rates the differential is higher, as flow removes less heat. Nothing touches the gas but the metal probe and tips.

Process Connection

Installed through the pipe or duct wall, connections can be made with NPT, flange, bore-through compression, or sanitary fittings. The probes can be installed in horizontal or vertical pipes. Electronics with optional display may be integral to the sensor or remotely mounted up to 200 feet from the sensor.

Turndown Ratio

Typical calibration ranges are 10:1 (options up to 200:1). Over-ranging cannot damage the sensors.

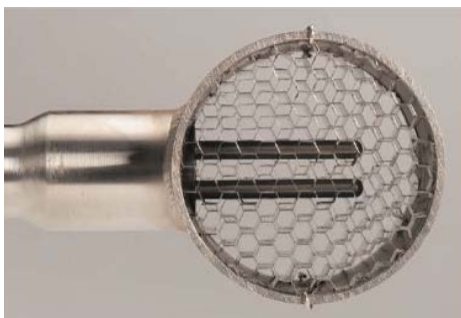
Duct Flow Meter Features and Options		
	Standard	Options
Turndown ratio	10:1	Up to 200:1
Process connection:	1" NPT	flanges, sanitary, hot tap
Wetted surface:	316 SS	Hastelloy C-276®, Monel®
Output:	4-20 mA	0-10 or 0-5 Vdc, voltage frequency or open collector, 1 or 2 SPDT relays
Display:	None	flow rate, total flow, fluid temperature
Input power:	24 Vdc	85-250 Vac (Remote electronics only)
Enclosure:	NEMA 4X, NEMA 7	NEMA 4, NEMA 7 (Remote electronics only)

Hastelloy is a registered trademark of Haynes International, Inc.

Monel is a registered trademark of Special Metals Corporation

What if there is little or no straight run available? Rheovec™ Sensor Heads

The turbulence and swirling of air and gas in short-run and curved ducts create accuracy problems for ordinary flow sensors due to fluctuating velocities. The Rheovec™ sensor head, with its unique honeycomb structure around the probe tips, eliminates off-axis error, enabling highly repeatable



true mass flow rate measurement. See Product Summary Rheovec for further information.

General Specifications

Applications

- Air ducts and process gas pipes

Line Size

- 1" to 36"

Calibration Units

- Mass, standard volume or standard velocity

Flow Rate Range

- 50 to 25,000 ft/min

Temperature Limits

(Specify requirements)

- Sensor: Standard 0 to 212°F (-18 to 100°C)
Optional: -40 to 500°F
- Electronics: 0 to 120°F (-18 to 49°C)

Pressure Limits

- Varies with process connection rating

Repeatability

- ±0.5% of reading

Calibration Accuracy

- ±2% of reading typical

FM Options for Hazardous Locations

- See Product Summary # FM for approved classes, divisions and groups

For assistance with any flow application, contact an application engineer at Bionetics, *the leader in precision thermal flow metering.* CALL **888-LOW-FLOW** (569-3569).



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