Description

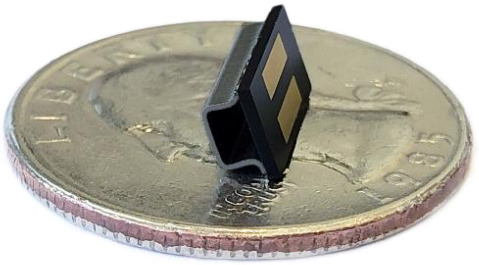
Instrumems flow sensing technology uses a revolutionary MEMS nanowire, which can be used as a hot wire anemometer (to measure fluid flow) and a resistance temperature detector (to measure ambient fluid temperature). The free-standing nanowire has an extremely low thermal mass, which gives the sensor a fast response time, low power consumption, high accuracy, and low pressure drop. The Silicon and Platinum die is very robust and has excellent long-term stability. This configuration contains the MEMS die in a package with two surface mount pads for connectivity. It's compatible with noncorrosive gases and is primarily intended for use in air.

Common applications

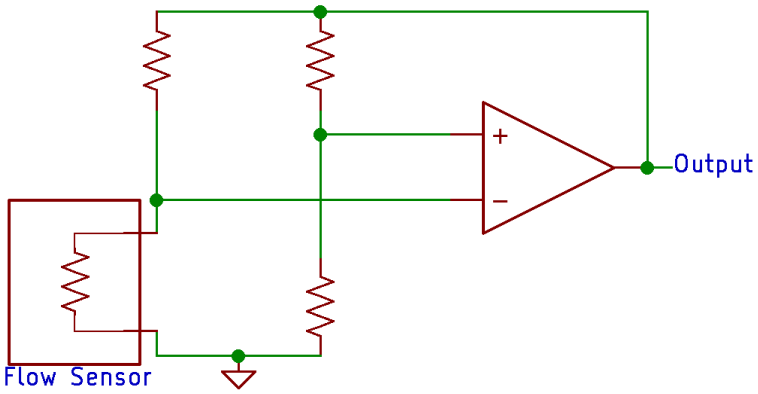
- Respirators, inhalers, CPAP machines
- HVAC systems
- Semiconductor process equipment
- Consumer airflow devices
- Fire detection systems

Features

- Fast response <1 ms
- Low power
- High accuracy
- Low pressure drop
- High sensitivity (especially at low flows)
- Wide Turndown ratio
- Measures both flow and temperature
- Single transducer sensor



Basic Application Circuit



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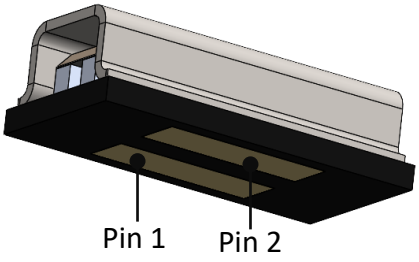
Pin Assignments

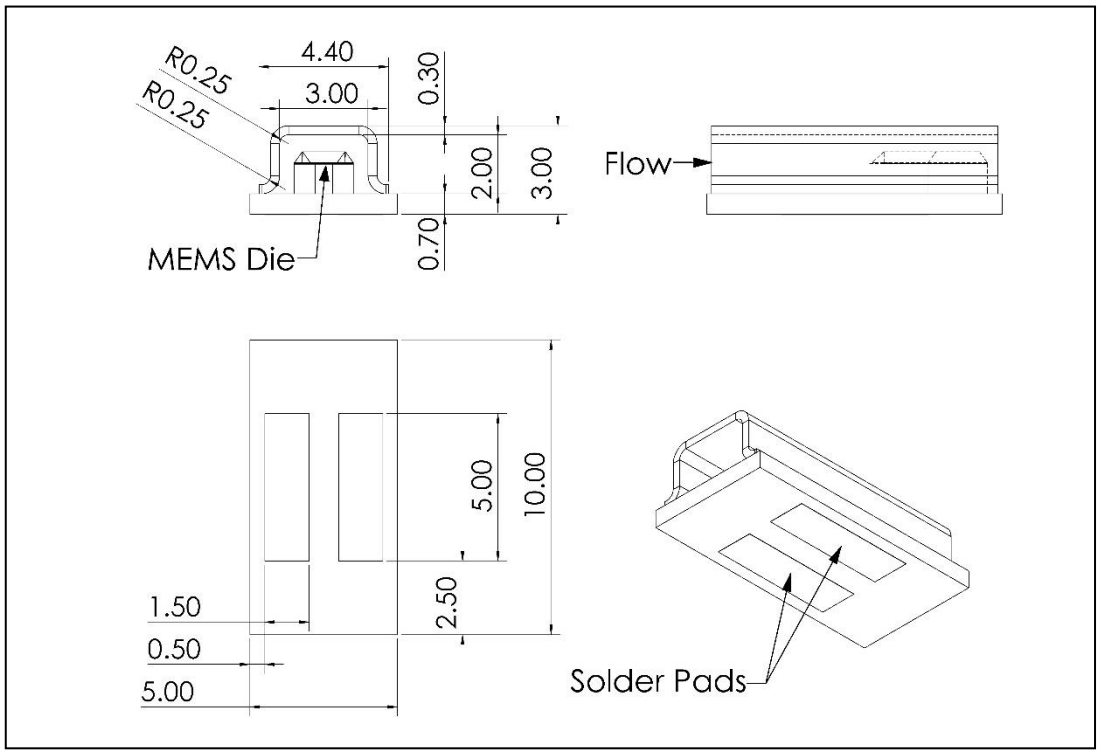


Pin Descriptions

Pin Number	Type	Description
1	Input/Output	Nanowire terminal 1
2	Input/Output	Nanowire terminal 2

Drawing and Dimensions of Sensor

All dimensions in [mm]

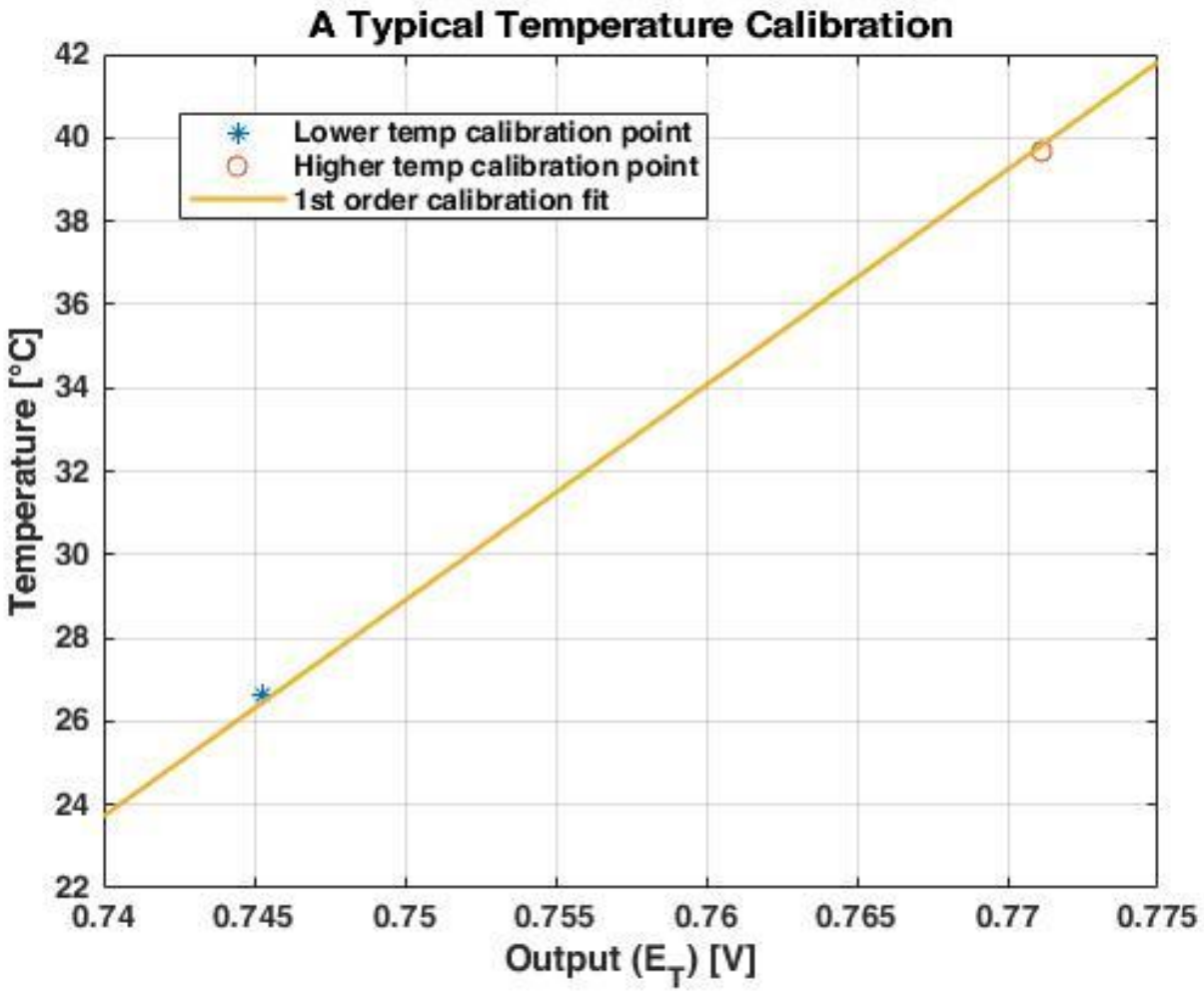


Technical Information

Parameter	Typical Value
Sensor outer package dimensions	10 x 5 x 3.2 mm
Sensor channel dimensions	3 x 2 mm
Flow operating range	0-20 SLPM
Maximum flow rating	25 SLPM
Media compatibility	Clean, dry air
Temperature operating range	0-50°C
Max frequency response (flow) [1]	300 kHz
Max frequency response (temperature) [1]	10 kHz
Temperature accuracy[1]	+/-0.1°C
Flow accuracy[1]	3% of m.v. or 0.2% of f.s. [2] (greater of)
Maximum applied power	10 mW
Settling time to 99% (flow and temp)[1]	1 ms

[1] Maximum sensor performance is limited to evaluation kit electronics capability
[2] m.v. = measured value, f.s. = full scale

Typical Temperature Data



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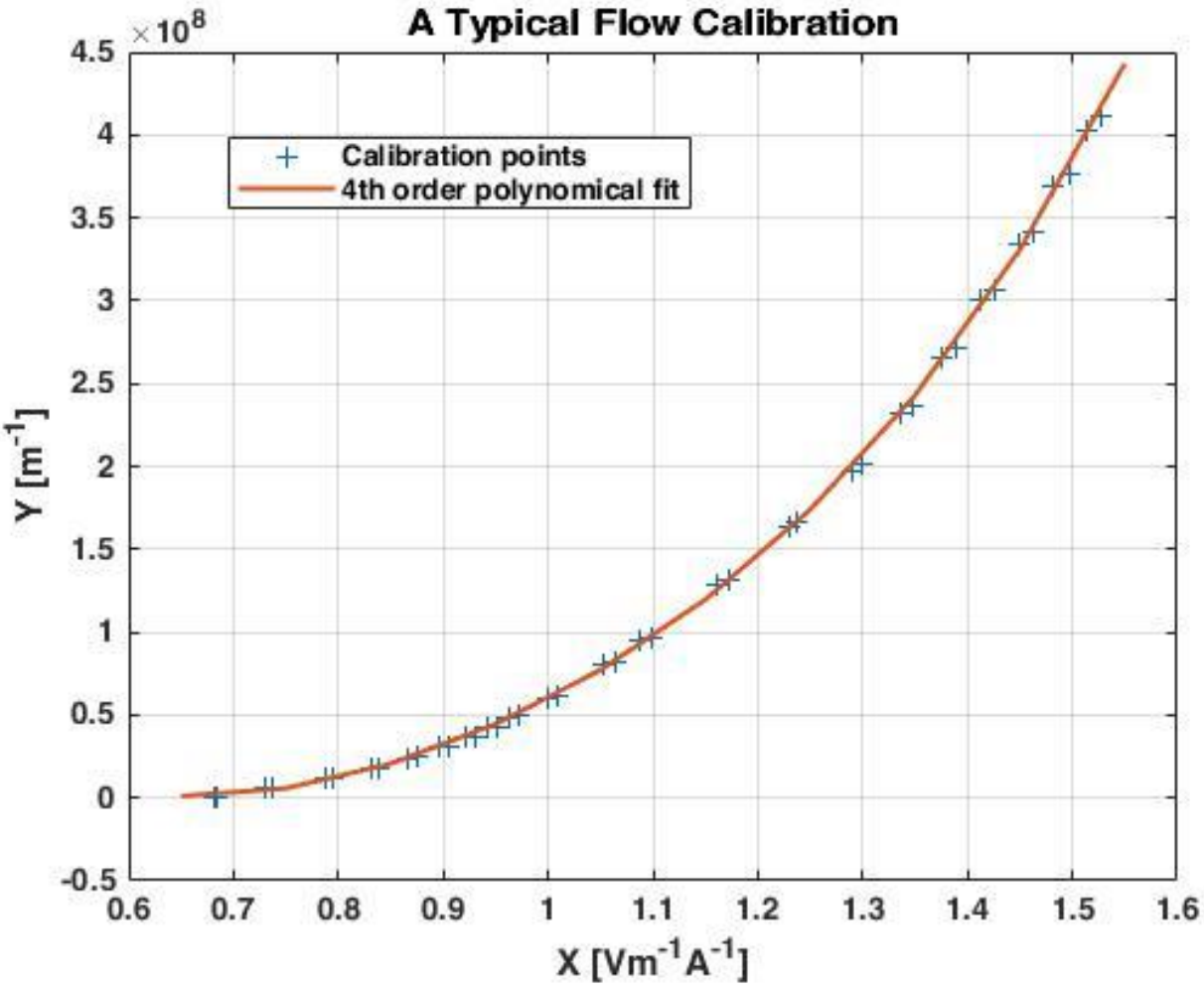
Typical Flow Data



***X and Y are temperature compensated quantity used in flow calculation. The output as flow [SLPM] is Y scaled for ambient temperature.**

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Ordering Information

Model Number	Description
IM-21AF020NG-1	Straight flow channel body

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