Ventilators
Application Note

Overview

Effective control of gas flow in ventilators is vital for optimising patient care and for preventing respiratory complications, such as hypoxia and lung injury.

Poorly controlled gas flow can lead to inadequate ventilation, adverse events, extended hospital stays and increased healthcare costs.

In addition, equipment repair or replacement expenses, along with potential legal and reputational costs can have a significant impact on already stretched healthcare budgets.

Flusso flow sensors offer a comprehensive solution for ventilator applications: with an unparalleled combination of high accuracy, fast response time, exceptional durability, tiny size, and a reliable supply chain.

Flusso flow sensors offer precise, real-time monitoring and control of gas flow in compact and portable ventilator applications.

Importance of gas flow measurement

Gas flow in ventilators refers to the controlled movement of air and other gases in and out of the patient's lungs. Ventilators are specifically designed to deliver precise oxygen and air mixtures, especially in critically ill patients who are unable to breathe on their own.

Accurate measurement of gas flow is critical in allowing healthcare providers to monitor the amount of gas being delivered to the patient's lungs and adjust it as needed. The flow is typically measured using flow sensors that are integrated into the ventilator circuit.

The flow measurements provided by these sensors allow healthcare providers to monitor and adjust the delivery of the respiratory gas mixture. For example, if the patient's oxygen saturation levels drop, the flow rate of oxygen can be increased.

Similarly, if the patient is hyperventilating or receiving too much air, the flow rate may be reduced to prevent complications such as lung damage or barotrauma.

Monitoring gas flow also helps to quickly identify potential system problems such as air leaks, blockages, or malfunctioning components. Fast detection and correction of these issues are essential to ensure safe and effective respiratory support for critically ill patients.

Overall, measuring gas flow in a ventilator is essential to ensure that critically ill patients receive the appropriate amount of oxygen and other gases required to support their respiratory needs.

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How Flusso can help?

Flusso gas flow sensors offer several compelling benefits for ventilator applications including:

High accuracy: Because the thermal conductivity of gases is well-characterised and predictable, Flusso sensors provide accurate and reliable measurements of gas flow rates.

Fast response time: For a swift detection and correction of anomalies that impact gas flow, ensuring efficient and reliable operation.

Small size: The FLS110 sensor has a market leading footprint of just 3.5 x 3.5 mm while the FSE-112 module has a footprint of just 16 x 22 mm. This small size minimises the space required for installation reducing system size and weight.

Durability: Flusso gas flow sensors are exceptionally robust and designed for use in products and systems that must operate for extended periods of time. This can help to reduce maintenance and repair costs and extend product lifespans.

Production scalability: Flusso gas flow sensors are manufactured using standard semiconductor processing techniques, making them the ideal solution for high-volume production.

Overall, the combination of high accuracy, fast response, small size and durability help to improve system performance and reduce the cost in ventilator applications.

Scan QR Code for more information or to order a flow sensor evaluation kit

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Gas flow sensors	Gas flow modules
FLS110 3.5 x 3.5 mm 1% Repeatability 3% Accuracy Differential pressure Mass/Volumetric flow Flow temperature Manifold installation	**FSE-112** 16 x 22 mm 1% Repeatability 3% Accuracy Differential pressure Bi-dir. Mass/Vol flow Flow temperature Manifold installation
FLS110 3.5 x 3.5 mm 1% Repeatability 3% Accuracy Bi-dir. gas flow velocity Mass/Volumetric flow Flow temperature In situ installation	**FSE-122** 15 x 36 mm 1% Repeatability 3% Accuracy Bi-dir. gas flow velocity Mass/Volumetric flow Flow temperature In situ installation

Evaluation Kit

Evaluation kits are available for all gas flow sensor products and contain everything you'll need to assess Flusso's flow sensors in your application. Kits are supplied with a fluidic fixture (to fit your flow range), push-fit connectors and a USB adapter to connect the sensor module directly to your PC.

Once you have everything connected together, you can easily recalibrate the sensor to take account of your complete system.

Using our evaluation kits, you can be measuring flow within minutes