Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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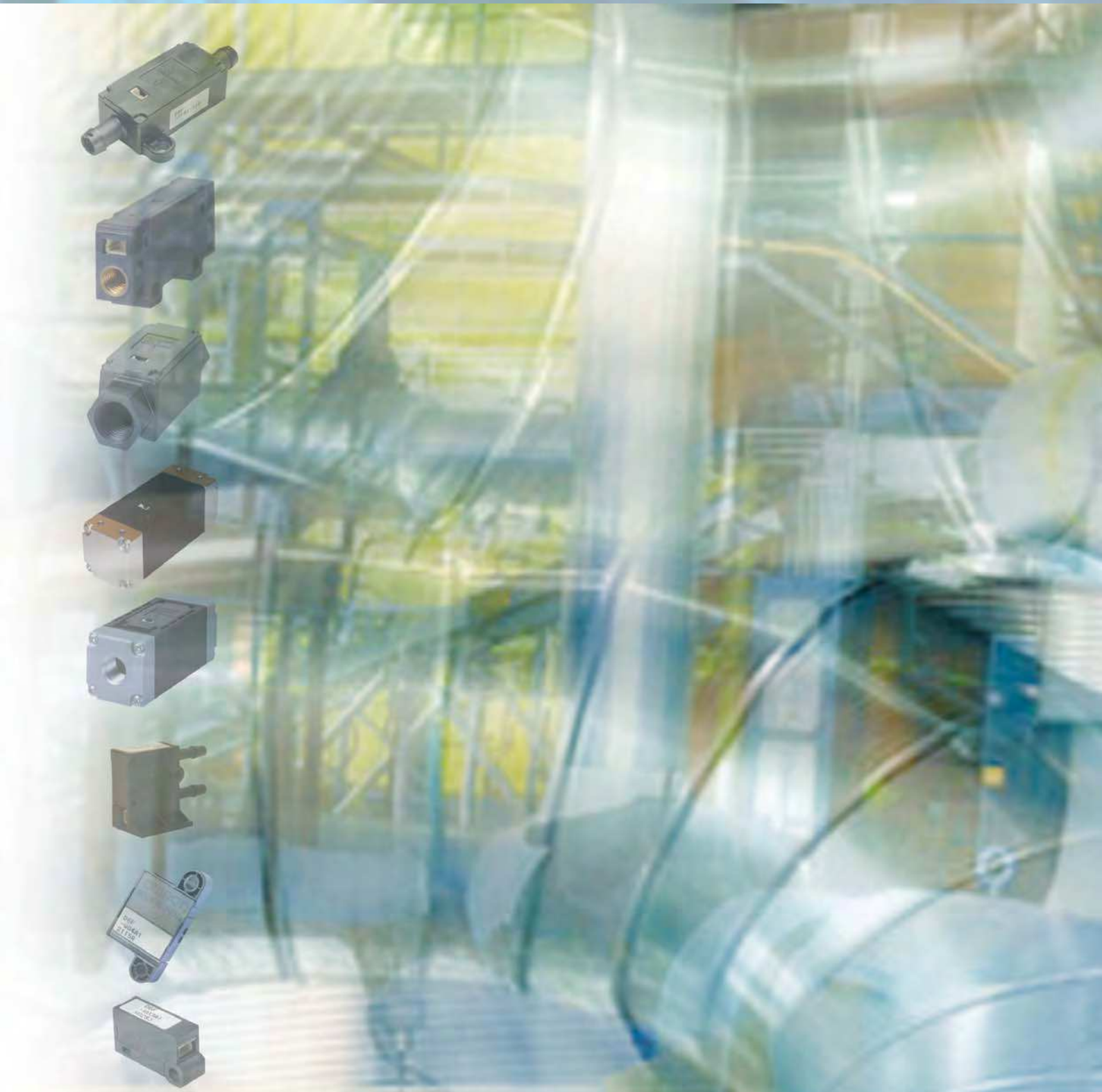
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

iSensors

INTELLIGENT



MEMS flow sensors

OMRON

MEMS flow sensors you can rely on

Precise, dependable mass flow measurement in a small package.

We have introduced a new generation of MEMS based flow sensors used for gas flow velocity and mass flow rate measurements. The 3D MEMS structure offers outstanding characteristics in terms of resolution and repeatability even at very low flow rates.

The D6F-V, D6F-W and D6F-P products incorporate a patent pending Dust Segregation System (DSS) allowing it to be used to monitor the performance of fans and air intakes and to detect clogged filters in general. Precision performance is maintained over the product life time with an integral DSS that separates up to 99.5% of dry air borne particulates (simulation result).

Gas/Air Flow

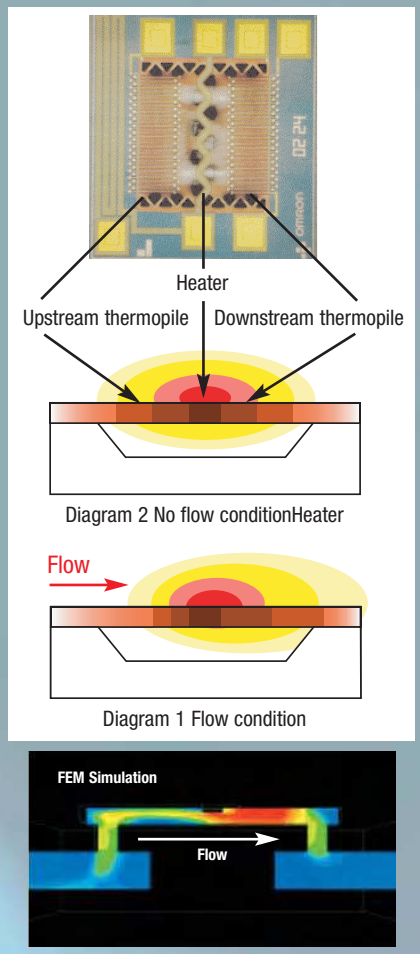
Flow measurement principle

Inside each D6F there is a highly sensitive MEMS flow chip that is only 1.55mm x 1.55mm x 0.4mm thick. The MEMS flow chip has two thermopiles either side of a tiny heater element used to measure the deviations in heat symmetry caused by the passing gas flow in either direction. A thin layer of insulating film protects the sensor chip from exposure to the gas.

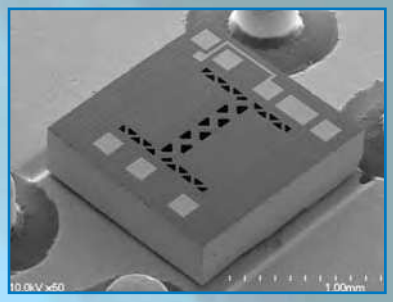
When there is no flow present, temperature distribution concentrated around the heater is uniform and the differential voltage over the two thermopiles is 0V (Diagram 1).

When even the smallest flow is present, temperature on the side of the heater facing the flow cools, and warms up on the other side of the heater - heat symmetry collapses (Diagram 2).

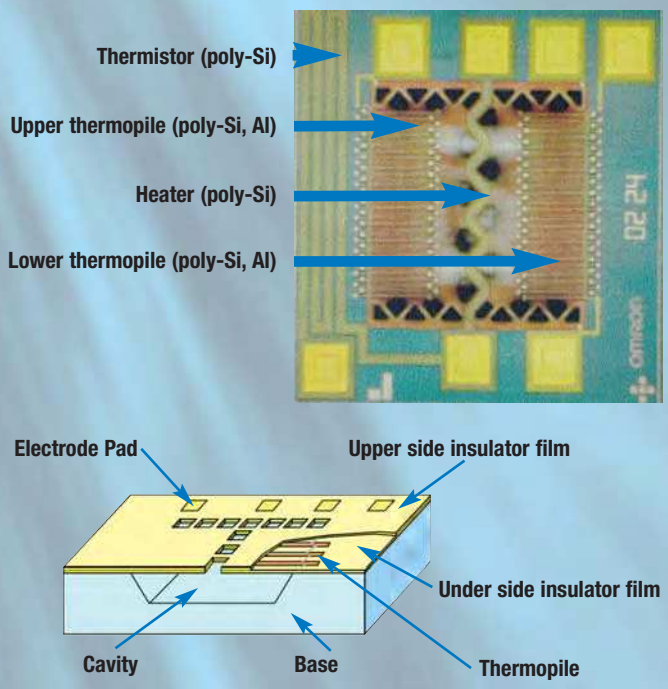
The difference of temperature appears as a differential voltage between the 2 thermopiles - the flow velocity, direction and mass flow rate can be measured.



Omron has been a leading manufacturer of MEMS based components and modules for measurement and control applications since 1990 and has shipped more than 20 million products.



We concentrate on bulk micro-machining such as anodic bonding, electro chemical etch (ECE), silicon processes such as thin film deposition, wet and dry etching, electrode formation & fine plastic replication and glass wafer processes.



Gas and Air Flow Sensors

Our family of MEMS Flow Sensors includes intelligent compact models capable of measuring flow velocity and mass flow rate movement with highly repeatable accuracy at flow rates from 1LPM to 50LPM (Litre per minute). High sensitivity is achieved with the MEMS Flow Chip.

Supersensitive gas flow sensors based on proprietary MEMS technology are able to measure gas velocity, direction and mass flow rate for both extremely low and high flow rates. Capable of highly accurate measurements over a wider temperature range compared with conventional mass flow metering, the D6F can detect mass flows with a repeatability of up to +/- 0.1% and an accuracy of up to +/-3% full scale deflection. The extreme sensitivity is achieved with a tiny heating element, associated with temperature sensors on both sides. Custom specific models could be made for quantities of approx. 100k pcs/year.

Intelli

Home Appliance

Gas Meter
Gas Leak Detector
Building Ventilation
Boiler/Combustion Control
Smoke Detector
Fan Assisted Heater

Medical

Chest Drainage
Ventilator
Anaesthetic device
CPAP
Oxygen Concentrator
Ozone Generator
Laparoscopic Surgery
Gas Chromatograph
Capnograph

Industrial

Process Control
Environmental Monitor/Gas Sniffer
Pressurised Cable Monitoring
Ventilator control
Clogged filter detection
Gas welding machine
Pick and Place
Fuel Cell
Scientific Devices
Gas flow controller
Fans

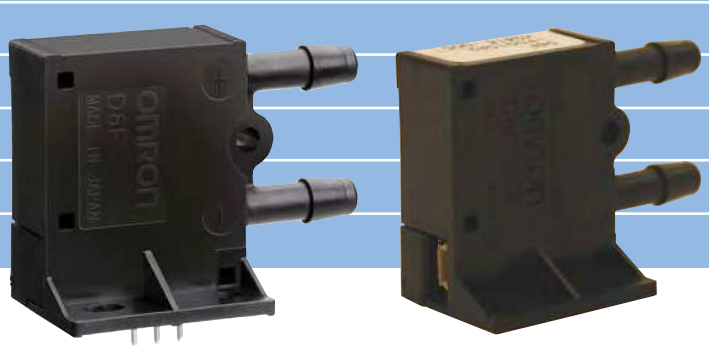
gent

Mass Flow Sensors

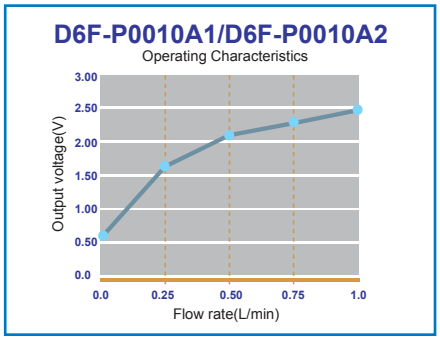
D6F-P

Uni-directional mass flow sensor*

Flow Range	**1LPM**, PCB terminal type (D6F-P0010A1) **1LPM**, connector type (D6F-P0010A2)
Compact Size	27.2(L) x 17.2(W) x 35(H)mm
Supply Voltage	4.75 – 5.25VDC
Analogue Output	0.5 to 2.5V
Accuracy	+/- 5% F.S.
Temp Range	-10 to +60°C
Gas Type	Air



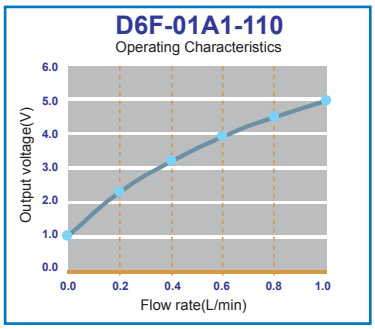
* Bi-directional mass flow sensor available on request.

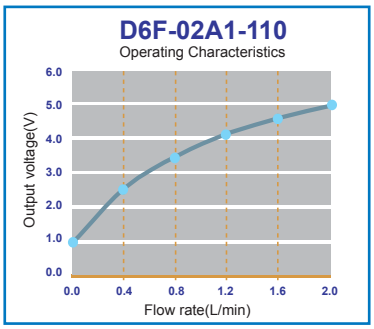


D6F-01A1 / 02A1

High accuracy mass flow sensor

Flow Range	**1LPM** (D6F-01A1-110)
	2LPM (D6F-02A1-110)
Compact Size	66(L) x 36(W) x 15.1(H)mm
Supply Voltage	10.8 - 26.4VDC
Analogue Output	1 to 5V
Accuracy	+/- 3% F.S.
Temp Range	-10 to +60°C
Gas Type	Air

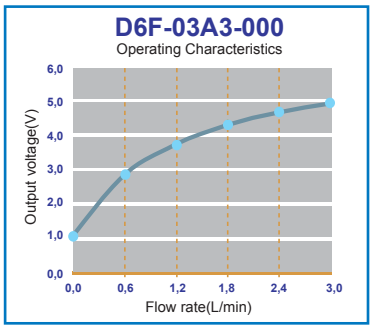




D6F-03A3

High accuracy mass flow sensor

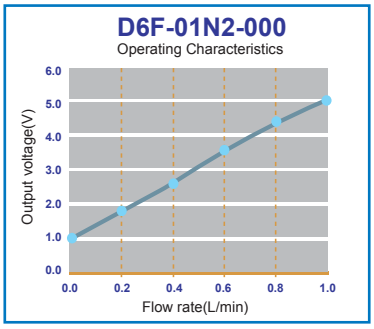
Flow Range	**3LPM** (D6F-03A3-000)
Ultra-Compact Size	36.6(L) x 8(W) x 16.8(H)mm
Supply Voltage	10.8 - 26.4VDC
Analogue Output	1 to 5V
Accuracy	+/-5% F.S.
Temp Range	0 to 50°C
Gas Type	Air

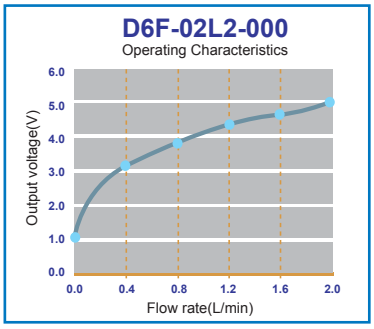


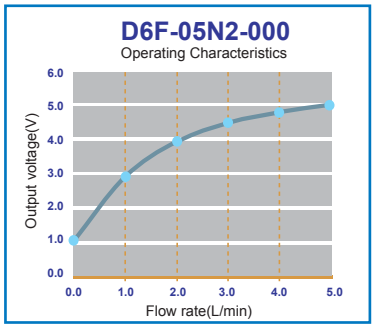
D6F-01N2 / 02L2 / 05N2

High accuracy mass flow sensor

Flow Range	**1LPM** (D6F-01N2-000), **2LPM** (D6F-02L2-000), **5LPM** (D6F-05N2-000)
Compact Size	62 (L) x 21.6(W) x 22.1 (H)mm
Supply Voltage	10.8 - 26.4VDC
Analogue Output	1 to 5V
Accuracy	+/- 3% F.S.
Temp Range	-10 to +60°C
Gas Type	N2 type LNG (Liquified Natural Gas) L2 type LPG (Liquified Propane Gas)





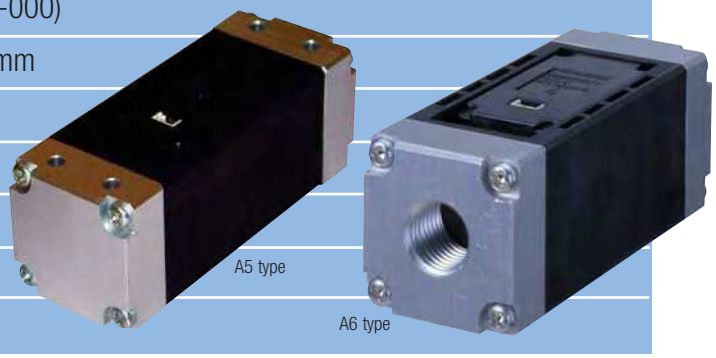


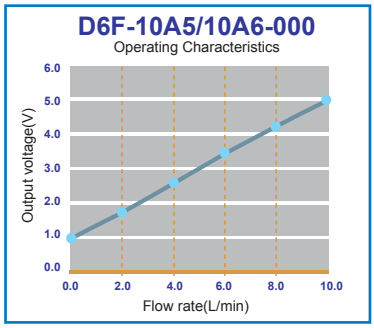
Mass Flow Sensors

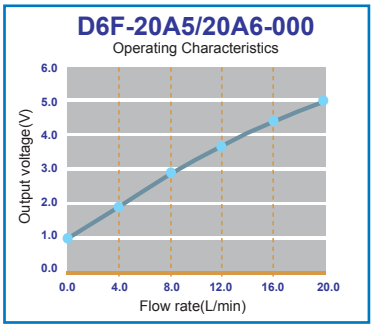
D6F-10A5 / 20A5 / 50A5-10A6 / 20A6 / 50A6

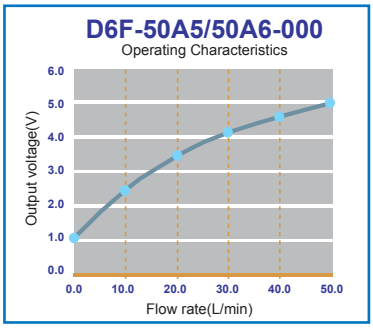
High accuracy mass flow sensor

Flow Range	**10LPM** (D6F-10A5/10A6-000), **20LPM** (D6F-20A5/20A6-000) **50LPM** (D6F-50A5/A6-000)
Compact Size	78(L) x 30(W) x 30 (H)mm
Supply Voltage	10.8 - 26.4VDC
Analogue Output	1 to 5V
Accuracy	+/- 3% F.S.
Temp Range	-10 to +60°C
Gas Type	Air





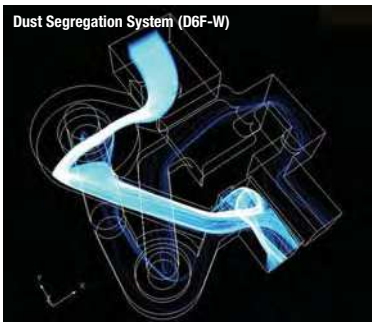




Air Velocity Sensors

Our D6F-W and D6F-V Sensors incorporate a Dust Segregation System (DSS) that helps maintain sensing performance in a variety of applications.

The housing design is based on a centrifugal principle to segregate particulates from the air. Most particulates cannot pass through the sensing area and are discharged through the exhaust route. As a result of the numerical analysis, the efficiency of the Dust Segregation System separates up to 99.5% of dry particulates.The D6F-W01A1 and D6F-W04A1 airflow sensors can measure air velocity from 0-1m/s and 0-4m/s with an accuracy of +/-5% full scale deflection. The D6F-V03A1 measures 0-3m/s. Each is supplied as standard, optimally adjusted at the factory so easy and rapid user application is guaranteed.



Perf

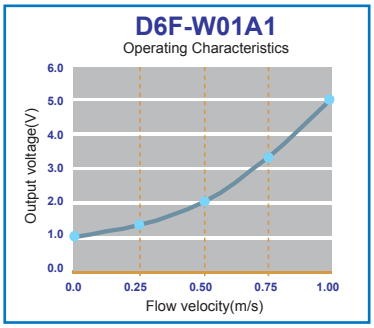

Cassette (ceiling/suspended) Multimodular Air Conditions
Duct Connected Heating and Air Conditioning Systems
Alternative for Single Point Pitot tube
Air & Water Air Conditioning Systems
Air Purifiers/ Dehumidifiers
Fan Assisted Heaters
Air Cooled, High Power Indoor Lighting
Mission Critical PC, Workstation Ventilation
19” Rack Ventilation Systems
LCD Projectors
AV Electronics Equipment
ormance

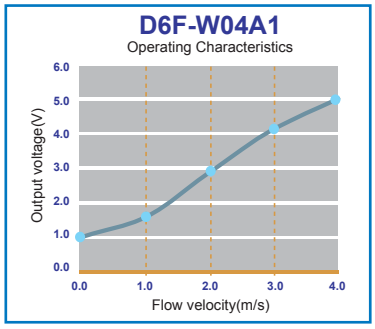
Air Velocity Sensors

D6F-W01A1 / W04A1

Precision air flow detection sensor

Flow Range	**1m/s** (D6F-W01A1) **4m/s** (D6F-W04A1)
Ultra Compact Size	20(L) x 39(W) x 9(H)mm
Supply Voltage	10.8 - 26.4VDC
Analogue Output	1 to 5V
Accuracy	+/- 5% F.S.
Temp Range	-10 to +60°C
Gas Type	Air

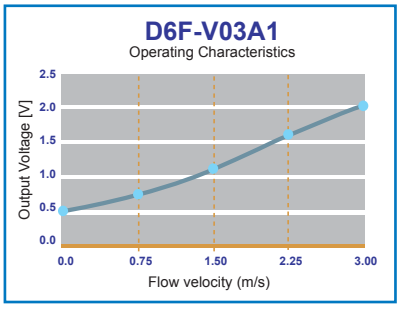




D6F-V03A1

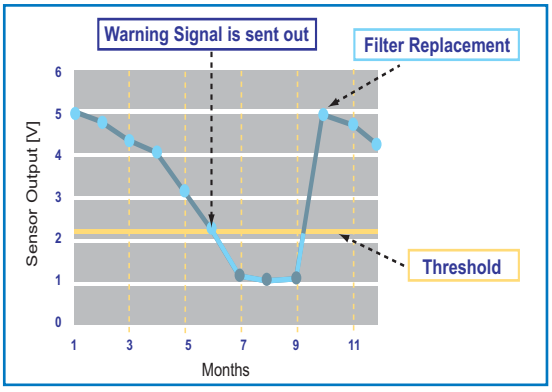
Precision air flow detection sensor

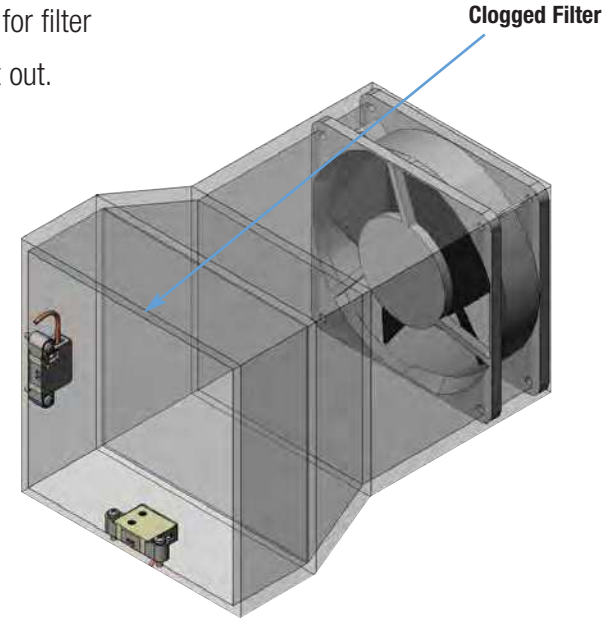
Flow Range	**3m/s** (D6F-V03A1)
Ultra Compact Size	24(L) x 14(W) x 8(H)mm
Supply Voltage	3.15 - 3.45VDC
Analogue Output	0.5 to 2V
Accuracy	+/- 10% F.S.
Temp Range	-10 to +60°C
Gas Type	Air



Clogged Filter Detection (Configuration 1)

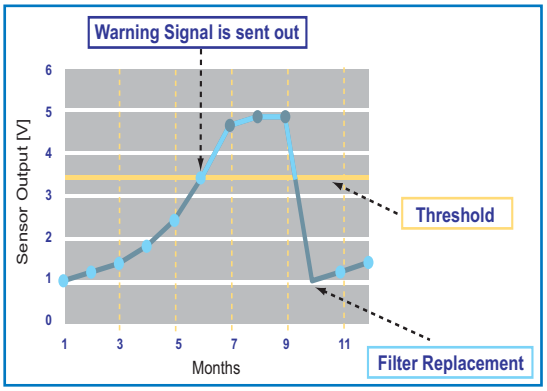
The sensor detects the pressure drop over the filter. The moment this drop exceeds a given threshold, a warning signal indicating the need for filter replacement is sent out.

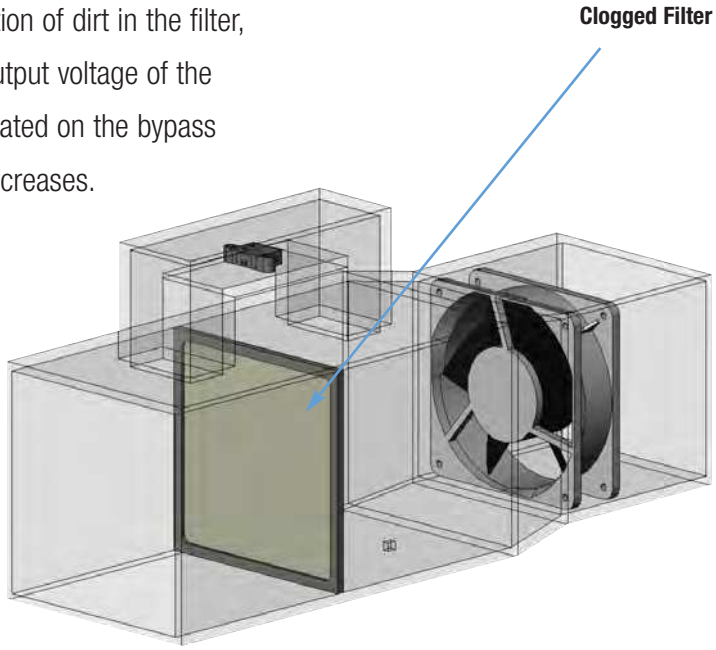




Clogged Filter Detection (Configuration 2)

Filter clogging can be detected, also using the bypass-like configuration. The differential pressure between upstream and downstream of the filter grows in proportion to the accumulation of dirt in the filter, and the output voltage of the sensor located on the bypass channel increases.





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