

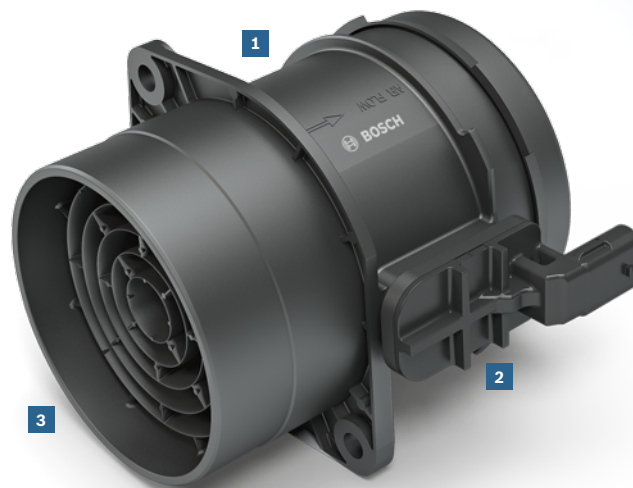
Air management

HFM-8 hot-film mass air-flow sensor



BOSCH

Invented for life



Product benefits

- ▶ Supports clean and efficient fuel combustion through precise and robust air mass measurement
- ▶ Reduced measuring tolerance and current draw
- ▶ Improved pulsation behavior
- ▶ Rapid response facilitates use with start-stop applications
- ▶ Customer-specific design and function variants with additional temperature, pressure, or humidity measurement
- ▶ Digital signal transmission via SENT interface

- 1** Cylinder housing with integrated flow straightener
- 2** HFM-8 mass air-flow sensor with electric connector
- 3** Air-mass flow

Vehicle segments



highly precise

The **exact knowledge about the mixture** of air and fuel mass allows a clean and efficient combustion.

± 2 %

pulsation behavior for precise measurements

Task For clean and efficient fuel combustion, the injected fuel mass must be perfectly matched to the air supply in the engine cylinder. The HFM-8's precision is further enhanced by the humidity sensor variant's additional parameter. This facilitates an additional reduction in NO_x emissions with SCR systems as well as optimized component protection in the air system. Optionally, pressure and temperature signals can be analyzed. The high signal and diagnostic precision helps it comply with strict emissions and fuel consumption legislation.

Function The exact air mass is calculated by intake air-flowing over a heated sensor membrane. The temperature is recorded by resistors on two defined measurement fields. An integrated electronic module calculates the air mass from this temperature difference and transmits the result to the ECU. Accuracy throughout the sensor's service life is ensured by the ASIC with integrated digital signal filters and optional SW correction (within the engine control unit). Optionally, a humidity sensor can be integrated. It uses a capacitive measuring principle with hygroscopic polymers. A new, smaller sensor element facilitates an aerodynamically optimized design of the sensor housing, improving measurement precision and reducing pulsation error.

Variations The HFM-8 is available in all function variants as a plug-in sensor or as a plug-in sensor in a cylinder housing. The cylinder housing can be customized to meet any diameter, length, or connection requirements.

Technical characteristics

Pulsation error	±2 % (with custom optimization measures)
New part tolerance	±1.5 %
Power supply	5V, 12V
Interfaces	SENT, FAS, LIN

HFM-8 function variants

HFM-8-T	Sensor with temperature measurement
HFM-8-pT	Sensor with pressure and temperature measurement
HFM-8-TH	Sensor with temperature and humidity measurement
HFM-8-pTH	Sensor with pressure, temperature, and humidity measurement

Measurement principle hot-film mass air-flow sensor

