



FS Flow Module

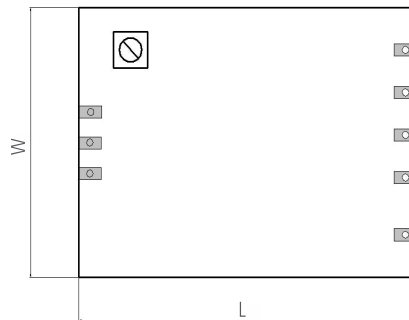
Thermal Mass Flow Sensor

Optimal for gas flow sensor evaluation

Benefits & Characteristics

- Easy to use plug & play module (not calibrated)
- Simple CTA (constant temperature anemometer)
- Simple gain adjustment
- No microprocessor or software influenced signal
- Customer-specific sensor available upon request

Illustration¹⁾



1) For actual size, see dimensions

Technical Data

Dimensions (L x W in mm):	45 x 25
Operating measuring range:	0 m/s to 50 m/s
Accuracy:	< 5 % of the measured value (dependent on calibration)
Operating temperature range:	-40 °C to +85 °C (module)
Temperature sensitivity:	< 0.5 %/K (dependent on calibration)
Connection:	solder pads on PCB
Heater ^{2):*}	$R_H(0\text{ °C}) = 45\ \Omega \pm 1\ \%$
Reference element ^{3):*}	$R_S(0\text{ °C}) = 1200\ \Omega \pm 1\ \%$
Voltage range (nominal):*	5 V DC $\pm 5\ \%$ (internal main voltage is 10 V)
Warm-up time:	< 30 s
Analog output, non linear ^{4):}	0 V (2) to 10 V; (operating point at still air = 3.5 V)

2) Related to the FS sensor

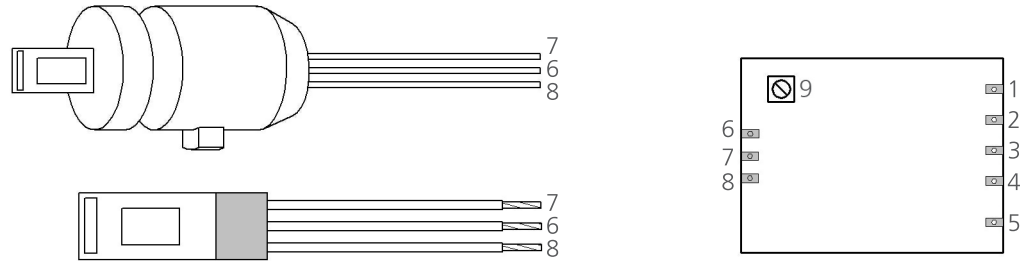
3) Related to the FS sensor

4) Can be adjusted with potentiometer

* Customer-specific alternatives available



Pin Assignment



1	2	3	4	5
flow output			GND	$U_{\text{supply}} +5 \text{ V}$
6	7	8	9	
temperature sensor	heater	GND	potentiometer	

Adjustment Procedure (if necessary)

1. Power up the module with 5 V_{DC} (min. 200 mA)
2. Connect multimeter to "flow output"
3. Adjust potentiometer for an output signal of about $3.5 \text{ V}_{\text{DC}}$ at flow = \emptyset
4. Produce a well-known flow e.g. 10 m/s (with reference, for example a mass flow controller)
5. Measure voltage at output (should be in the range of 5 V_{DC} to 7 V_{DC})
6. Calculate the voltage difference between 0 m/s and 10 m/s (e.g. $2.8 \text{ V}_{\text{DC}}$)
7. The signal is the non linearised output signal $> 0 \text{ m/s}$ to $10 \text{ m/s} = 3.5 \text{ V}_{\text{DC}}$ to $6.3 \text{ V}_{\text{DC}}$

The signal then can be offset adjusted and linearised with software on target system like a microcontroller, LabView, MatLab etc.

Order Information³⁾

	FS Flow Module
Order code	160.00001

³⁾ The module does not contain any sensor. The sensor should be ordered separately.

Additional Documents

	Document name:
Data Sheet:	DFFS5_E DFFS7_E
Application Note:	AFFS5_E AFFS7_E



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