



# MFS02 on PCB

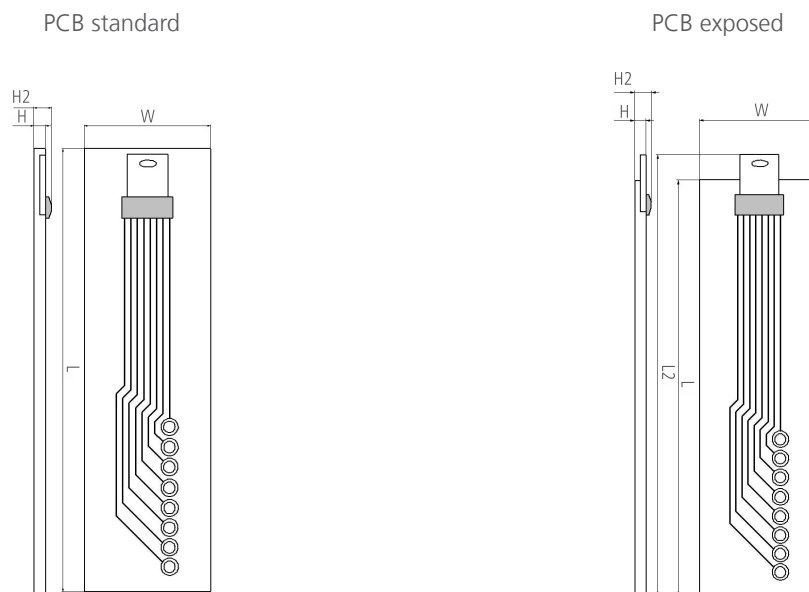
## Thermal Mass Flow Sensor

### Optimal for ultra fast measuring of gas flow and direction

#### Benefits & Characteristics

- Excellent solution for applications with high flow rates and fast response time in CTA mode
- Very high measuring dynamic with CTA mode (10'000'000 : 1) without bypass
- Detection of flow direction
- Excellent for very low flow rates and leakage detection with bridge mode
- High chemical resistance against aggressive gases and vapors

#### Illustration<sup>1)</sup>



1) For actual size, see dimensions

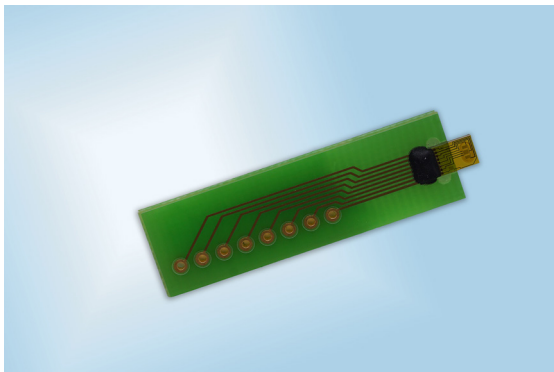
#### Technical Data

Dimensions (L / L2 x W x H / H2 in mm):	PCB standard	38.2 x 10.8 x 1.0 / 2.0
	PCB exposed	34.2 / 37.4 x 10.8 x 1.0 / 2.0
Operating measuring range:	0 m/s to 1.5 m/s (full bridge mode)	
	0 ml/min to 100 ml/min (full bridge mode)	
	0 m/s to 150 m/s (CTA mode)	
	0 l/min to 10 l/min (CTA mode)	
Minimum operating range:	0 ml/min to 1 ml/min	
Response sensitivity:	0.0003 m/s (20 microliter/min)	

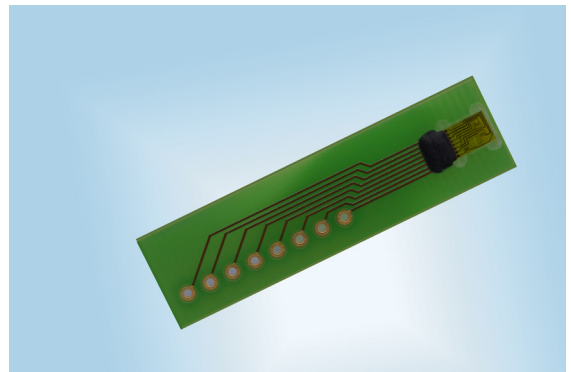


Accuracy:	< 2 % of the measured value (dependent on the electronics and calibration)
Response time $t_{63}$ :	< 10 ms
Temperature range (chip):	-40 °C to +160 °C
Temperature range (gas):	-40 °C to +80 °C (maximal +80 °C less than chip temperature)
Temperature sensitivity:	< 0.1 % / K (dependent on the electronics)
Connection:	bonding pads
2 elements:	$R_{high}(0\text{ °C}) = 710\ \Omega \pm 10\ %\ R_A, R_D$
2 elements:	$R_{low}(0\text{ °C}) = 530\ \Omega \pm 10\ %\ R_B, R_C$
Matching between elements:	< 2 %
1 element:	$R_{amb}(0\text{ °C}) = 825\ \Omega \pm 10\ %$
Voltage range (nominal):	2 V to 6 V (full bridge mode)
Bridge offset (full bridge mode):	Maximal $\pm 50\text{ mV}$ at $V_{CC} = 5\text{ V}$ ; typical $\pm 10\text{ mV}$
TCR bridge offset (full bridge mode):	Maximal $\pm 50\text{ ppm/K} \times V_{CC}/2$
Power consumption (no flow):	10 mW to 50 mW (resp. chip temperature +50 °C to +160 °C)

### Product Photo

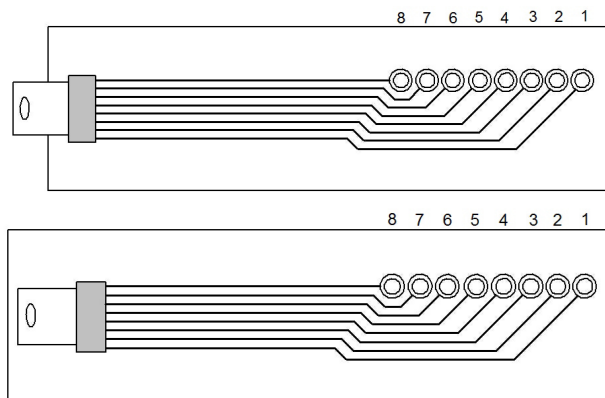


PCB exposed



PCB standard

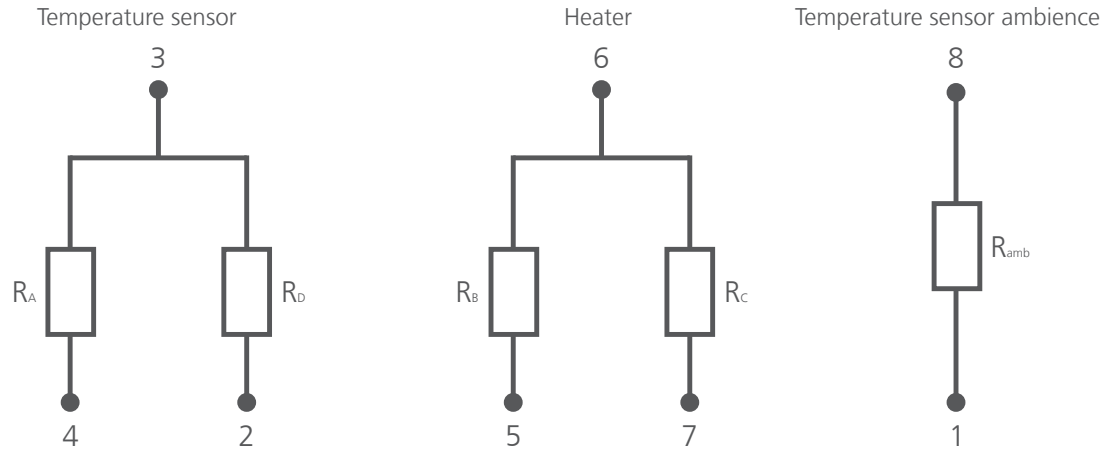
### Pin Assignment



1	2	3	4	5	6	7	8
$R_{amb}$	$R_D$	$R_A/R_D$	$R_A$	$R_B$	$R_C/R_B$	$R_C$	$R_{amb}$



## Electrical Equivalent Circuit



## Order Information

Description:	Item number:	Former main reference:
MFS02.PSTD.0	103745	050.00266
MFS02.PEXP.0	103746	050.00267

## Additional Electronics

Description:	Item number:	Former main reference:
MFS02	103743	050.00263
MicroFlowSens Amplifier Module	104955	350.00097



Innovative Sensor Technology IST AG, Stegrütistrasse 14, 9642 Ebnat-Kappel, Switzerland  
Phone: +41 71 992 01 00 | Fax: +41 71 992 01 99 | Email: info@ist-ag.com | www.ist-ag.com

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