Thermopile Sensors

HEIMANN Sensor
HEIMANN SENSOR GMBH

HMS Series

Miniature Thermopile Sensors for Remote Temperature Measurement and Gas Analysis

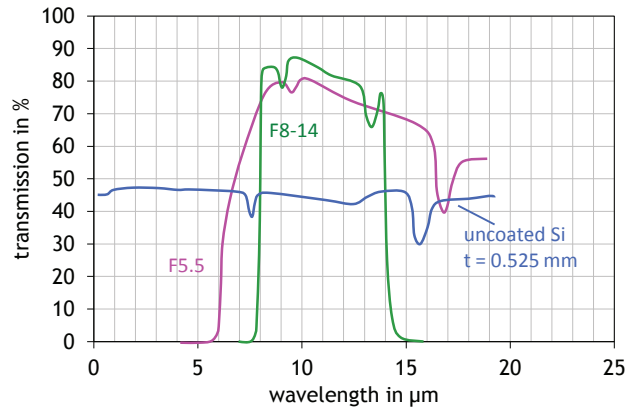
The HMS Series offers CMOS compatible thermopile sensor chips in TO-46 and even smaller transistor housings.

They feature high sensitivity, small temperature coefficient of sensitivity and high reproducibility and reliability.

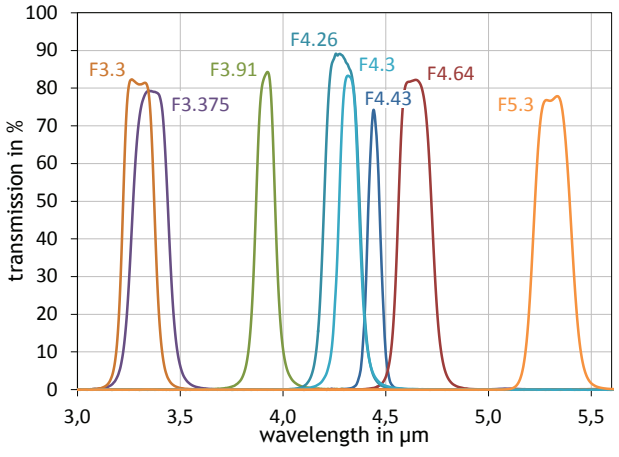
The small package sizes allow applications in which sensor mounting is a critical parameter. Especially the HMS Z11 sensor opens new design and application possibilities.

The small TP1 thermopile chip is best for temperature measurements with a precise measuring spot, whereas the TP2 thermopile chip provides higher voltage signal.

Filter types for Temperature Measurements

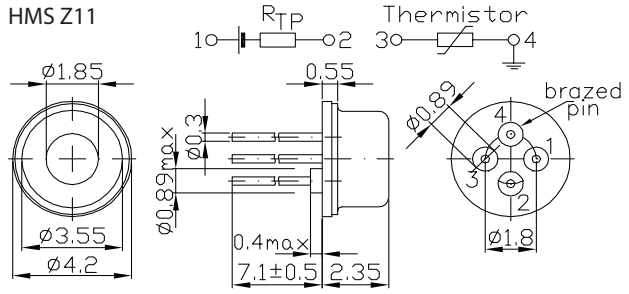


Filter types for Gas Analysis

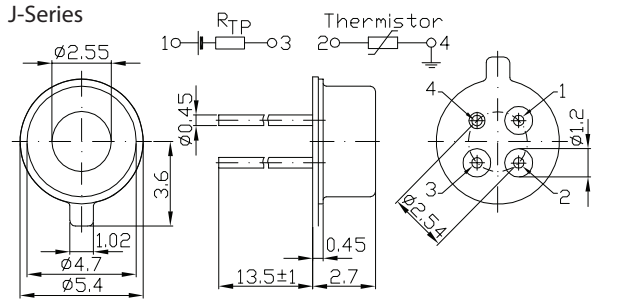


Dimensions

HMS Z11



J-Series



Characteristics

	HMS Z11	HMS J11	HMS J1c1 K1c1*	HMS J21	Unit
Element size	0.61²	0.61²	0.76²	1.2²	mm²
Voltage response[a]	22	22	30	63	V mm² / W
Sensitivity[a]	58	58	52	44	V / W
Resistance R_{TP}[b]	86	86	75	84	kOhm
TC of resistance R_{TP}[b]	0.02	0.02	0.02	0.02	% / K
Noise[b]	38	38	35	37	nV / Hz$^{1/2}$
Detectivity[a),b)]	0.9·10⁸	0.9·10⁸	1.1·10⁸	1.4·10⁸	cm Hz^{½} / W
Time constant	<5	<5	8	10	ms
Thermistor reference[b]	100	100	100	100	kOhm
Temp. coeff. of thermistor[c]	3940	3940	3940	3940	K
Field of view[d]	95	120	120	120	°
Operating temperature	-20 … 120				°C
Storage temperature	-40 … 120				°C

a) Without filter, T_{obj} = 100°C, DC
b) At T_{amb} = 25°C
*same as J1c1, without orientation nose
c) 25°C, 50°C
d) deg at 50% signal level

Filter-Selection-Guide

Gas	- (ref)	CO_2	HC	CO	NO
Filter (CWL/HPBW in µm/nm)	F3.91/90	F4.26/180	F3.3/160	F4.64/180	F5.3/180
		F4.30/110	F3.375/190		
		F4.43/60			

Ordering Information

HMS	Heimann miniature thermopile sensor
J, K, Z	Package type (TO-46, µ-TO)
1, 1c, 2	Thermopile chip
1, 0	Thermistor 100kΩ, no thermistor
Fx	Filter type

E.g.: **HMS Z11 F5.5**
HMS J21 F4.26/180

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