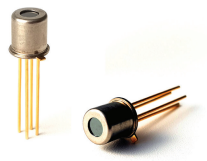
Thermopile Modules

HEIMANN Sensor
HEIMANN SENSOR GMBH



HMM M-Series

Digital Miniature Modules for Temperature Measurements

The HMM-Series includes Heimann Sensor's smallest thermopile sensor chip and sensor signal conditioning IC in a tiny TO-46 metal housing with 4 leads for remote temperature measurements. It allows computed object temperature or digitized raw voltage readout in SMBus compatible operation with an output range from -5°C to 115°C.

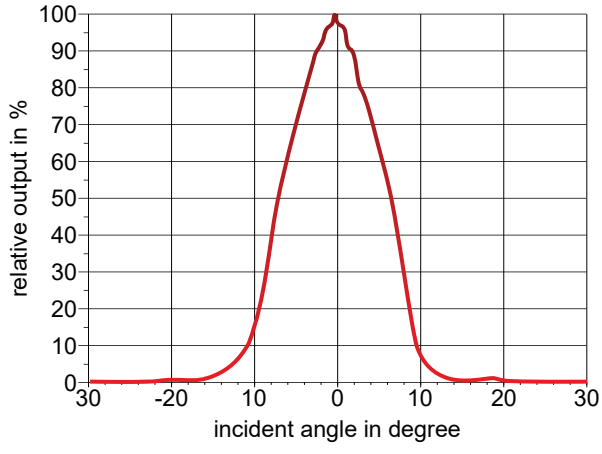
In PWM mode, the temperature output range can be defined with respect to the desired temperature resolution In SMBus compatible operation, the temperature resolution is <0.1°C and the sensor ensures high accuracy over a wide sensor and object temperature range.

The M-package comes with an integrated optical lens which provides a 4:1 distance-to-spot-ratio for smaller measurement spots or larger measurement distances.

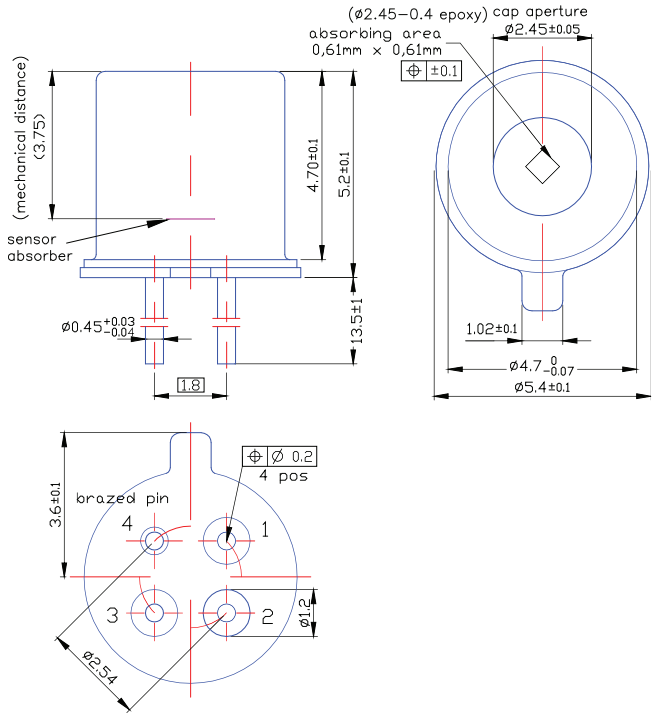
Temperature Performance

Object Temperature [°C]	Sensor (Ambient) Temperature [°C]			Temperature Accuracy [°C]
	-40 .. 0	0 .. 40	40 .. 85	
-30 .. 0	±3.5°C	±2.5°C	±3°C	
0 .. 60	±2.5°C	±1.5°C	±2°C	
60 .. 115	±3°C	±2°C	±2.5°C	

Field of View



Dimensions



PIN-Configuration

Pin No.	Symbol	Description
1	SDA/PWM	Serial Data or PWM output
2	VDD	Supply (V+)
3	SCL	Serial Clock
4	VSS	Supply (GND)

Parameters Module

	HMM M13	Unit
Supply voltage	3	V
Supply current	1.4	mA
Start up time after POR	150	ms
Object temp. range	-5 ... 115	°C
Refresh rate ASIC	100	ms
Operating temperature	-40 ... 85	°C
Storage temperature	-40 ... 125	°C

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Thermopile Modules

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HMM J-Series / N-Series

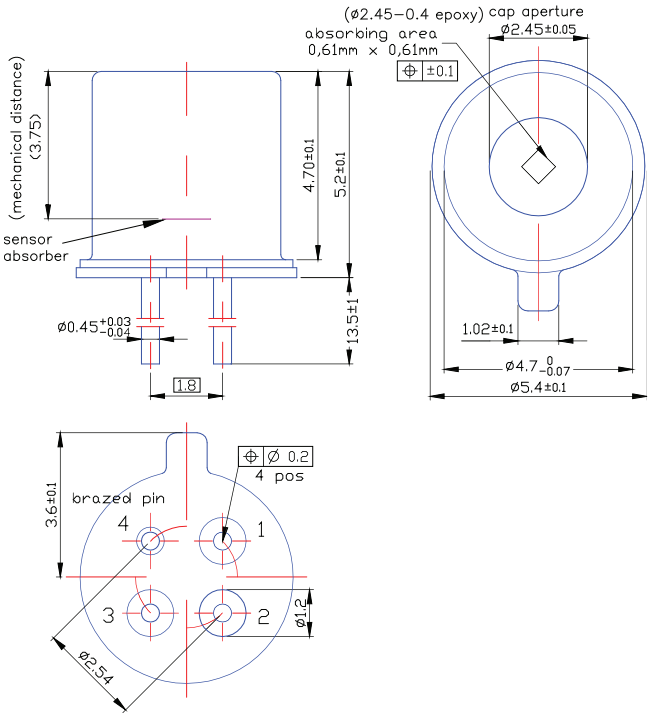
Digital Miniature Modules for Temperature Measurements

The HMM-Series includes Heimann Sensor's smallest thermopile sensor chip and sensor signal conditioning IC in a tiny TO-46 metal housing with 4 leads for remote temperature measurements. It allows computed object temperature or digitized raw voltage readout in SMBus compatible operation with an output range from -5°C to 115°C.

In PWM mode, the temperature output range can be defined with respect to the desired temperature resolution In SMBus compatible operation, the temperature resolution is <0.1°C and the sensor ensures high accuracy over a wide sensor and object temperature range.

The J-package type comes with a standard cap opening of 2.55mm. The N type has a reduced cap opening of 1.55mm resulting in a smaller field of view of 80°.

Dimensions



Temperature Performance

Object Temperature [°C]	Sensor (Ambient) Temperature [°C]			Temperature Accuracy [°C]
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60 .. 115	±3°C	±2°C	±2.5°C	

PIN-Configuration

Pin No.	Symbol	Description
1	SDA/PWM	Serial Data or PWM output
2	VDD	Supply (V+)
3	SCL	Serial Clock
4	VSS	Supply (GND)

Characteristics Module

	TP1	TP1c	TP2	Unit
Element size	0.61²	0.76²	1.2²	mm²
Time constant sensor chip	5	8	10	ms
Sensitivity[a)]	58	52	44	V / W
Voltage response[a)]	22	30	63	V mm² / W
Resistance R_{TP}[b)]	86	75	84	kOhm

a) Without filter, T_{obj} = 100°C, DC
b) At T_{amb} = 25°C

Parameters Module

	HMM J13 / N13	Unit
Supply voltage	3	V
Supply current	1.4	mA
Start up time after POR	150	ms
Object temp. range	-15 ... 115	°C
Refresh rate ASIC	100	ms
Field of view 50% energy	100 / 80	°
Operating temperature	-40 ... 85	°C
Storage temperature	-40 ... 125	°C

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