

Thermopile Module
Type HTIA Cx Tx



General information about HTIA models are described in
 "Application Note Thermopile Module Analog".

Features and Benefits

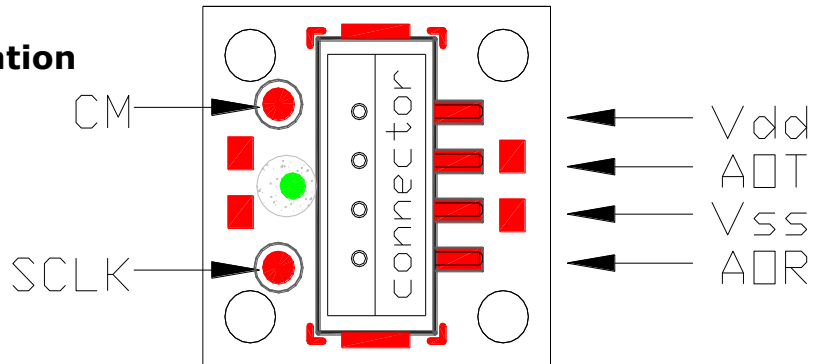
- PCB mounted with connector, metal cap aperture , infrared filter
- 5V supply voltage
- 2 analog voltage outputs (thermopile sensor and temperature reference)
- Low response time of 5ms
- Absorber size 0.61mm x 0.61mm
- Factory calibrated to default object temperature range upto 300°C
- IR transmission >70% % within wavelength range 7.5µm to 13µm
- Optional with internal temperature compensation (type HTIA DC)

Ordering Information

HTIA -> Heimann thermopile sensor and integrated circuit on pcb
 Cx -> metal cap TO-39 with opening Ø2.5mm closed by an infrared filter
 x->„U" sensor signal not compensated
 x->„C" sensor signal internal compensated
 Tx -> object temperature upper limit

Sample: HTIA CU T100 , without internal compensation , object temperature range up to 100°C within output voltage range

Pin Configuration



| Symbol | Description |
|------------|---|
| VDD | Positive supply voltage |
| VSS | Negative supply voltage / Ground (0V) |
| AOT | Analogue output voltage Thermopile sensor |
| AOR | Analogue output voltage Temperature reference |
| SCLK CM | Programming pads for factory setting |

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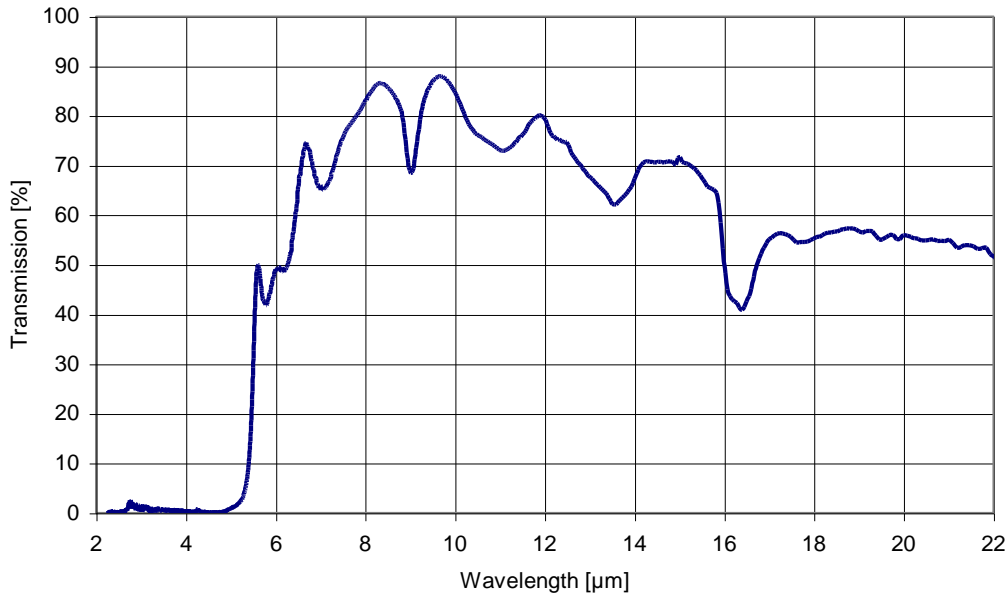
Electrical and Operating Conditions

| <i>Parameter</i> | <i>Typical Value</i> | <i>Unit</i> | <i>Condition</i> |
|---------------------------------------|----------------------|-----------------|--|
| Supply voltage VDD | 4.5 .. 5 .. 5.5 | V | +Vs |
| Supply voltage VSS | 0 | V | -Vs , ground |
| Supply current | 1 .. 1.7 .. 2.2 | mA | without load |
| Output voltage range | 0.3 .. VDD-0.3 | V | |
| Start up time after POR | Max. 0.5 | sec | electrical start up |
| Output resistance | < 10 | Ohm | f < 100Hz |
| Output load | > 20 | kOhm | for optimal operation |
| Sensor absorbing area | 0.61 x 0.61 | mm ² | sensor type TP1 |
| Object temperature range | -30 .. +300 | °C | factory default setting |
| Sensor amplification | 150 .. 5500 | | output AOT, factory default |
| Response time sensor | 5 | msec | t/T = 63% |
| Temperature reference voltage at 25°C | 1.225 | V | output AOR, factory default |
| Sensitivity temperature reference | 15 (10 .. 16) | mV/°C | output AOR ; factory default type "U" (type "C") |
| Operating temperature | -20.. 120 | °C | |

Infrared Transmission

| <i>parameter</i> | <i>minimum</i> | <i>typical</i> | <i>maximum</i> |
|---|----------------|----------------|----------------|
| Cut on wavelength | 5.2µm | 5.5µm | 5.8µm |
| Average transmission from 7.5µm to 13.5µm | 70% | | |
| Average transmission from visual to 5µm | | | 0.5% |

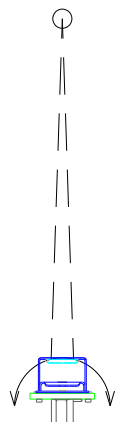
Sample Curve Transmission



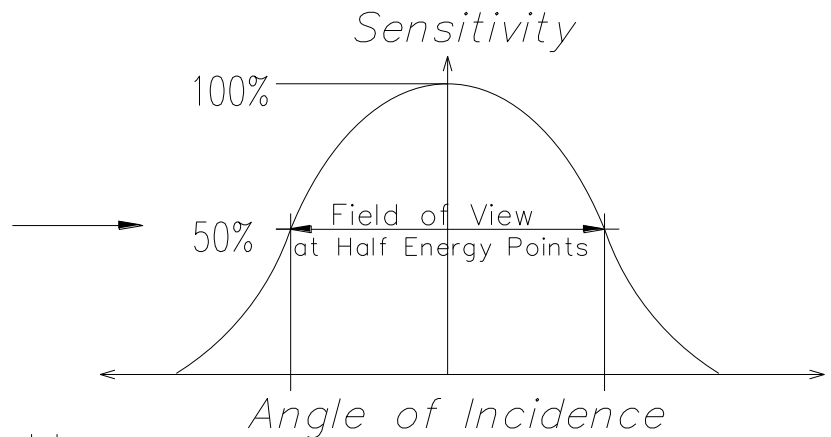
Field of View

| <i>parameter</i> | <i>limits</i> | | | <i>unit</i> | <i>conditions</i> |
|------------------|---------------|------------|------------|-------------|-------------------|
| | <i>Min</i> | <i>Typ</i> | <i>Max</i> | | |
| field of view | | 40 | | degree | 50% energy points |

Pulsed Point Radiation Source



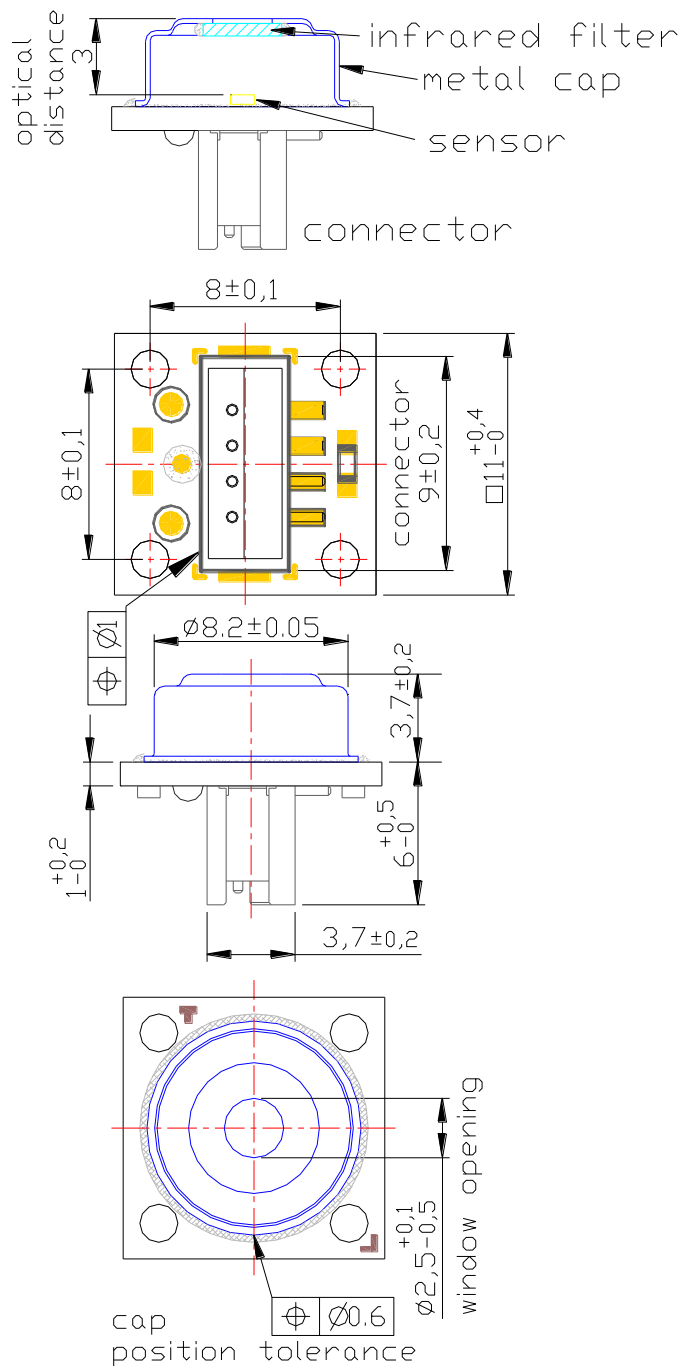
Rotated Sensor Module



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Dimensional Drawing



Liability

Changes or modifications at the product which haven't influence to the performance and/or quality of the device haven't to be announced to the customers in advance. Customers are requested to consult with Heimann Sensor representatives before the use of Heimann Sensor products in special applications where failure or abnormal operation may directly affect human lives or cause physical injury or property damage. The company or their representatives will not be responsible for damage arising from such use without prior approval.