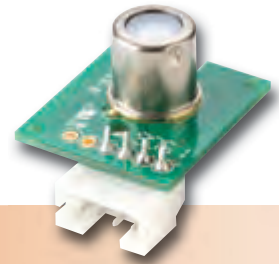


Thermopile Module With Integrated Processing And Optics For Temperature Measurement



TPiM 1T 0136 L5.5, TPM 1T 0134 M(y) – Thermopile Module with TPMI®

Target Applications

- Industrial Temperature Monitoring
- Pyrometry

Features and Benefits

- Internal Signal Processing
- Factory-calibrated
- Lens or Mirror Optics
- Ambient Temperature Compensation
- ISOthermal Performance

Product Description

The Module range consists of a thermopile sensor, mounted on a PCB with connector. The PCB can also provide for optional features as voltage regulation and a noise-reduction filter. The Module is also featuring ISOthermal performance and includes the integrated temperature compensation for a defined temperature environment, and the calibration to a certain object temperature range. When ordering, please specify the correct ambient and object temperature ranges needed. For defined spot size requirements, we offer sensors with a Field of View defined by optical apertures, internal lenses or external mirror optics. The lens module is provided with a very small pcb. The mirror version has a longer size pcb and allows different orientations for the Mirror, M(y). A protective external filter may be supplied with the mirror module.

For the various object temperature ranges, Excelitas offers the following pre-calibrated Modules:

Integral Lens types

- 20...60°C: TPiM 1T 0136 L5.5 OAA060 P7
- 20...120°C: TPiM 1T 0136 L5.5 OAA120 P7
- 20...180°C: TPiM 1T 0136 L5.5 OAA180 P7
- 20...250°C: TPiM 1T 0136 L5.5 OAA250 P7

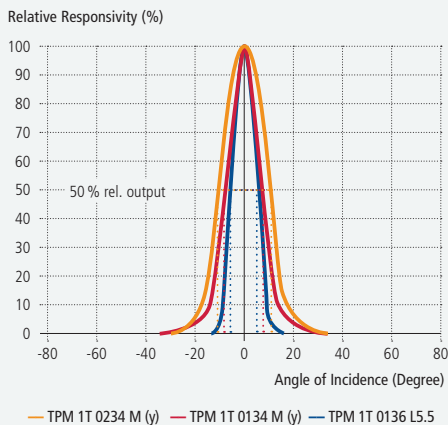
External Mirror types

- 20...140°C: TPM 1T 0134 OAA140 P M(y)
- 20...180°C: TPM 1T 0134 OAA180 P M(y)
- 20...250°C: TPM 1T 0134 OAA250 P M(y)

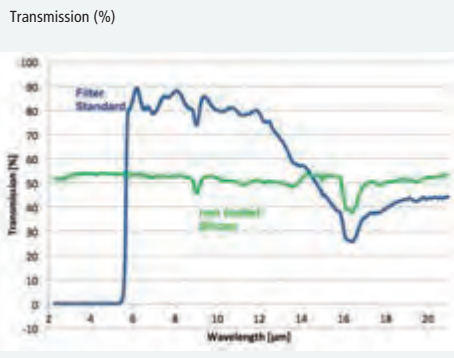
Mirrors in different viewing orientations M(y); y = L (left) / y = F (front) / y = R (right).

A temperature reference output is included. Upon request, the modules can be supplied as "OBA" version, which are calibrated but without internal temperature compensation. In this case the customer will do the temperature compensation externally with the use of the supplied reference output. The temperature accuracy of the fully-adjustable integrated circuit outperforms discrete solutions. With the integration of Thermopile and electronic circuits in compact TO-5 type metal housing, the TPiS is robust and insensitive to environmental influences like leakage currents on the parent PCB, relative humidity, or electromagnetic interference.

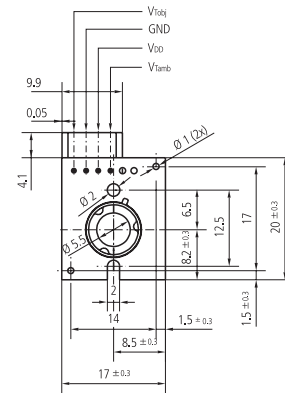
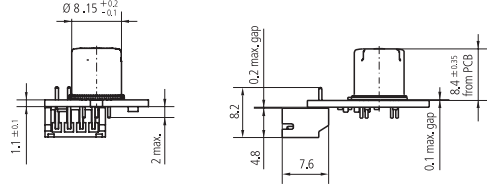
Field of View



Filter

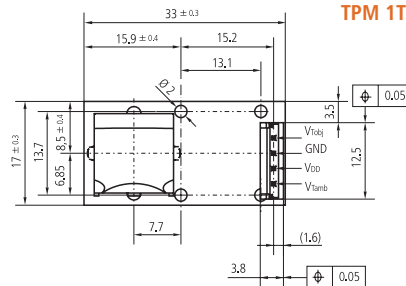
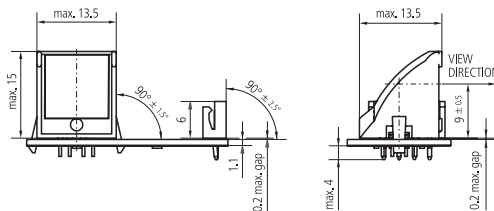


TPiM 1T 0136 L5.5



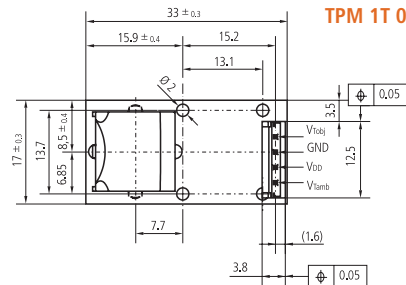
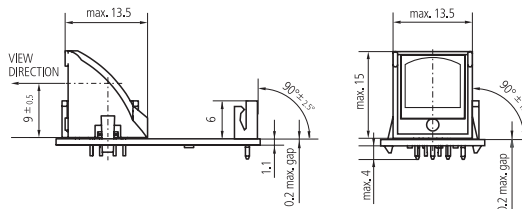
TPiM 1T 0136 L5.5

TPM 1T 0134 P6 M(y)



TPM 1T 0134 P6 M(y)

TPM 1T 0134 P9 M(y)



TPM 1T 0134 P9 M(y)

TPiM 1T 0136 L5.5, TPM 1T 0134 P6 M(y) and TPM 1T 0134 P9 M(y)

Parameter	Symbol	TPiM 1T 0136 L5.5	TPM 1T 0134 P6 M(y)	TPM 1T 0134 P9 M(y)	Unit	Remark
Output Voltage Swing	V_o	0,25...(V _{DD} - 0,25)	0,25...(V _{DD} - 0,25)	0,25...(V _{DD} - 0,25)	V	
Resistive Output Load	R_L	50	50	50	kΩ	min.
Object Temp Accuracy		1,5	1,5	1,5	K	+ / -
Response Time	t_{resp}	100	100	100	ms	typ.
Supply Voltage	V_{DD}	4,5...5,5	4,5...5,5	4,5...15*	V	*= voltage regulator
Supply Current	I_{DD}	1,5	1,5	1,7	mA	typ.; $R_L > 1M\Omega$
Operating Temp range		-25...+100	-25...+100	-25...+100	°C	
Storage Temp range		-40...+100	-40...+100	-40...+100	°C	
ESD tolerance		2,5	2,5	2,5	kV	human body model
Field of View , typ.	FoV	4,5	5,5	5,5	degrees	at 50% point
Distance to Spot size ratio		11:1	-	-		