



T H E R M O M E T R I C S  
A C O M M I T M E N T T O E X C E L L E N C E

# ZTP-188MA

## Thermometrics IR Module



The ZTP-188MA 1 x 8 IR module is used for non-contact surface temperature monitoring. This thermopile IR module presents the temperature compensated 8 linear array outputs via I<sup>2</sup>C with optics (Silicon Lens). It can also provide compatibility with the customer's device without the need for recalibration. The ZTP-188MA uses 4-wire connections: two signals for I<sup>2</sup>C output, single power supply and ground. The sensor is fully calibrated with a wide object and ambient temperature range. Lens for different field of views are available on request.

### Applications

- Air conditioners
- Human body temperature detection

### Features

- Digital temperature output
- I<sup>2</sup>C communication protocol
- Fully calibrated and compensated
- 1 x 8 array module
- Compact size and large detection range
- Low power consumption
- Multi-zone detection

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# Specifications

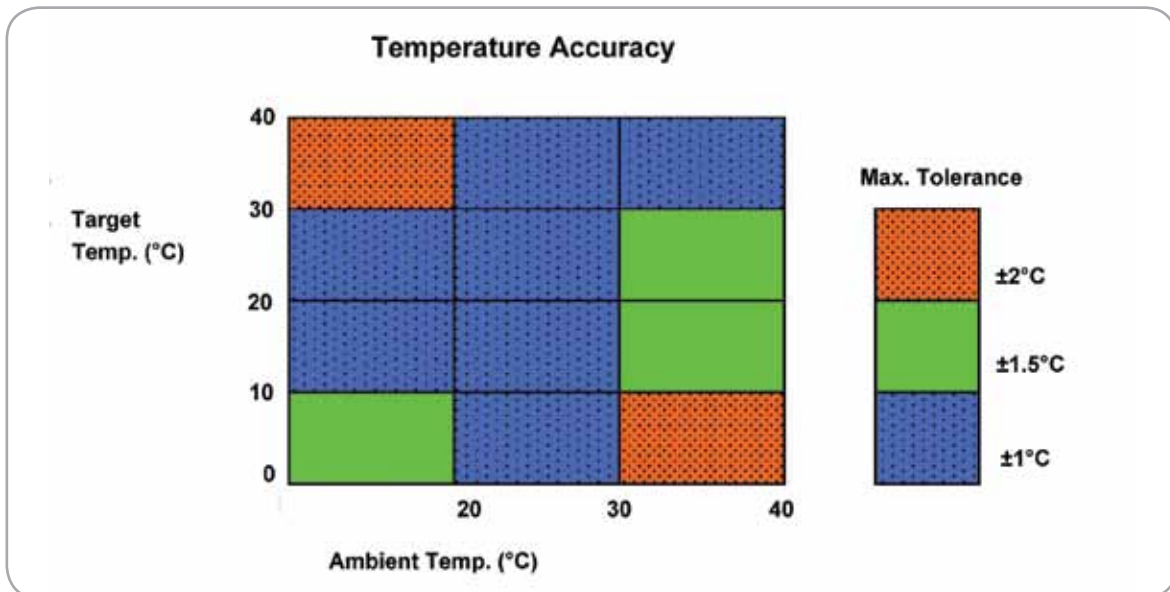
Parameter	Limit			Unit
	Min	Typ	Max	
Supply Voltage	4.75	5.00	5.25	V
Supply Current		4.5		mA
Temperature Range	0		40	°C
Operating Temperature	0		70	°C
Storage Temperature	-20		100	°C
Resolution		0.1		°C
Output Type	Digital I <sup>2</sup> C			
Baud Rate		100		Kbit/sec
Address length		7		Bit
Address		0 x 58		-
Input/Output High level	0.7 VDD			V
Input/Output Low level			0.3 VDD	V

**Total FOV**  
50 degree

**Pixel FOV**  
7 degree

**PCB Size**  
23 mm X 30 mm

## Temperature Accuracy

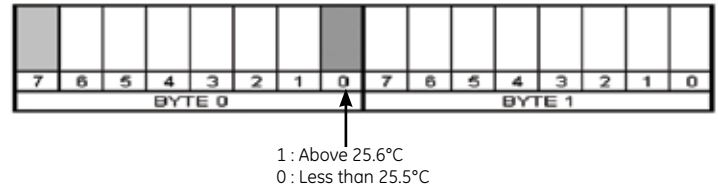


# Output Format

## I<sup>2</sup>C Command

Sensor	I <sup>2</sup> C Address	Command	Descriptions
ZTP-188MA	0x58	0xA1	Read Target Temperature
		0xB1	Read Sensor Temperature

## Temperature Calculation



## Examples of Temperature Calculation

### Case-1 : 0°C ~ 25.5°C

- Send value : 0x58, 0xA1
- Return value : Byte(0) : 0x00, Byte(1) : 0xC8

$$\begin{aligned} \text{Output temperature} &= (256 * \text{Byte}(0) + \text{Byte}(1)) / 10 \\ &= (256 * 0 + 200) / 10 \\ &= 20.0 \end{aligned}$$

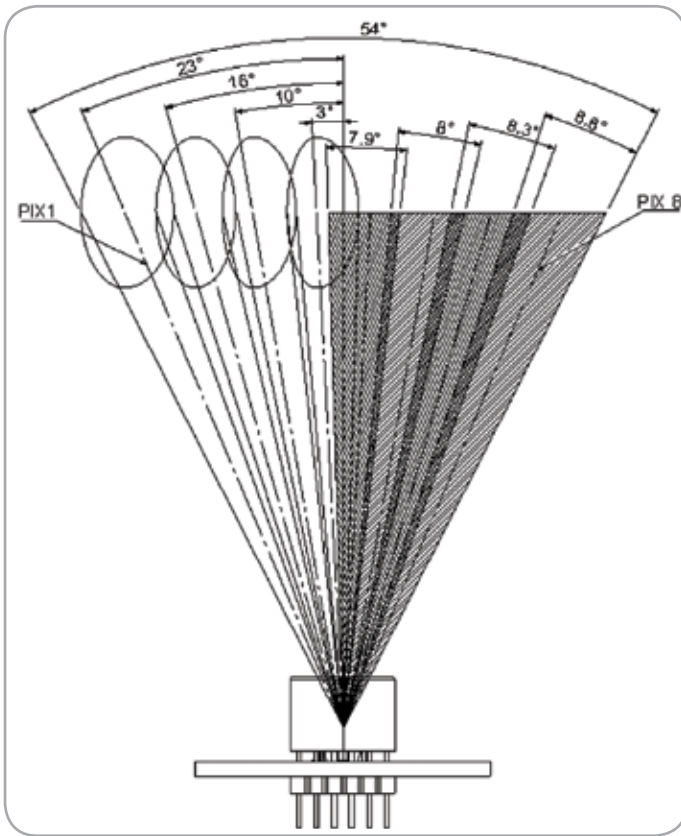
### Case-2 : above 25.6°C

- Send value : 0x58, 0xA1
- Return value : Byte(0) : 0x01, Byte(1) : 0x96

$$\begin{aligned} \text{Output temperature} &= (256 * \text{Byte}(0) + \text{Byte}(1)) / 10 \\ &= (256 * 1 + 150) / 10 \\ &= 40.6 \end{aligned}$$

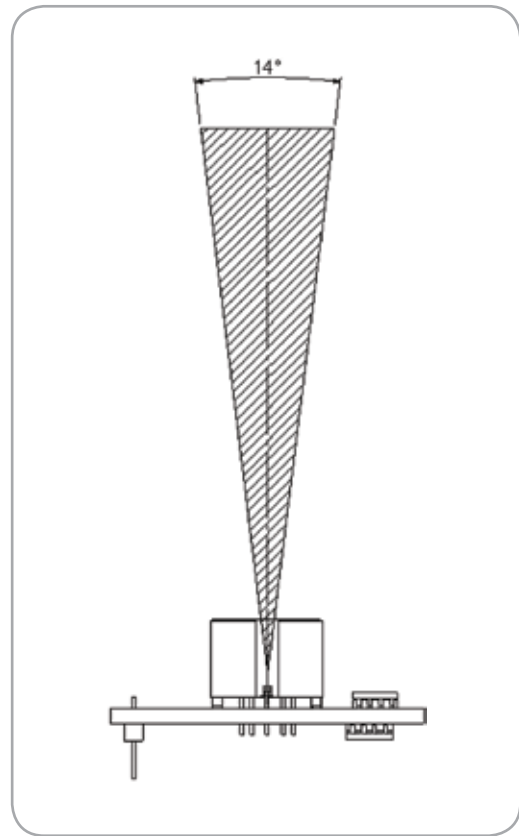
## Field of View of Sensor Module

Horizontal FOV	Remark
54°	50% of maximum output



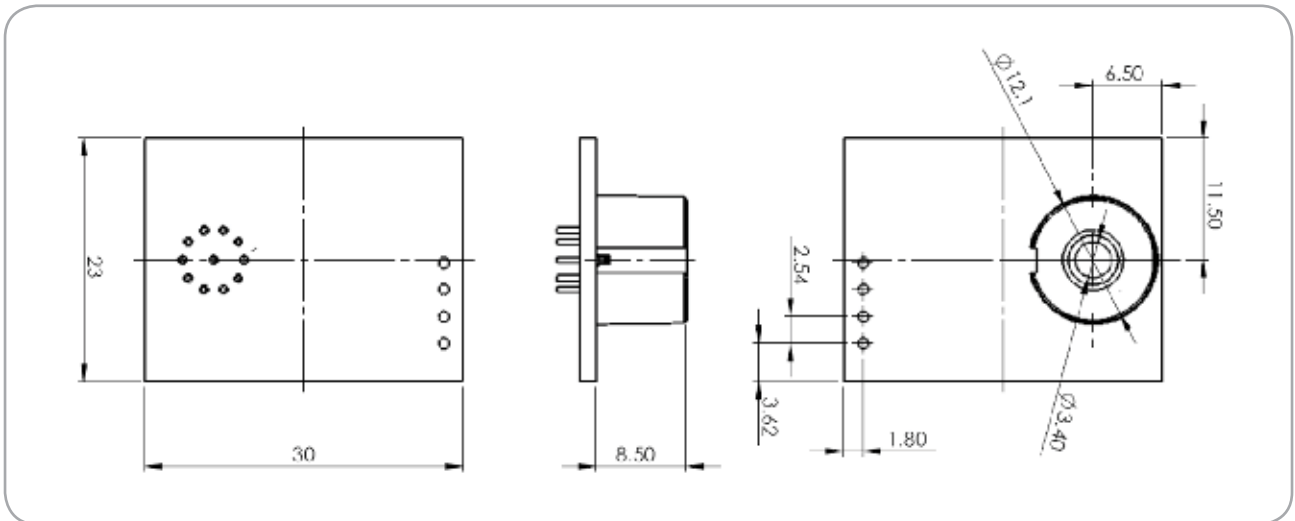
Horizontal FOV

Vertical FOV	Remark
14°	50% of maximum output



Vertical FOV

## Package Dimension



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