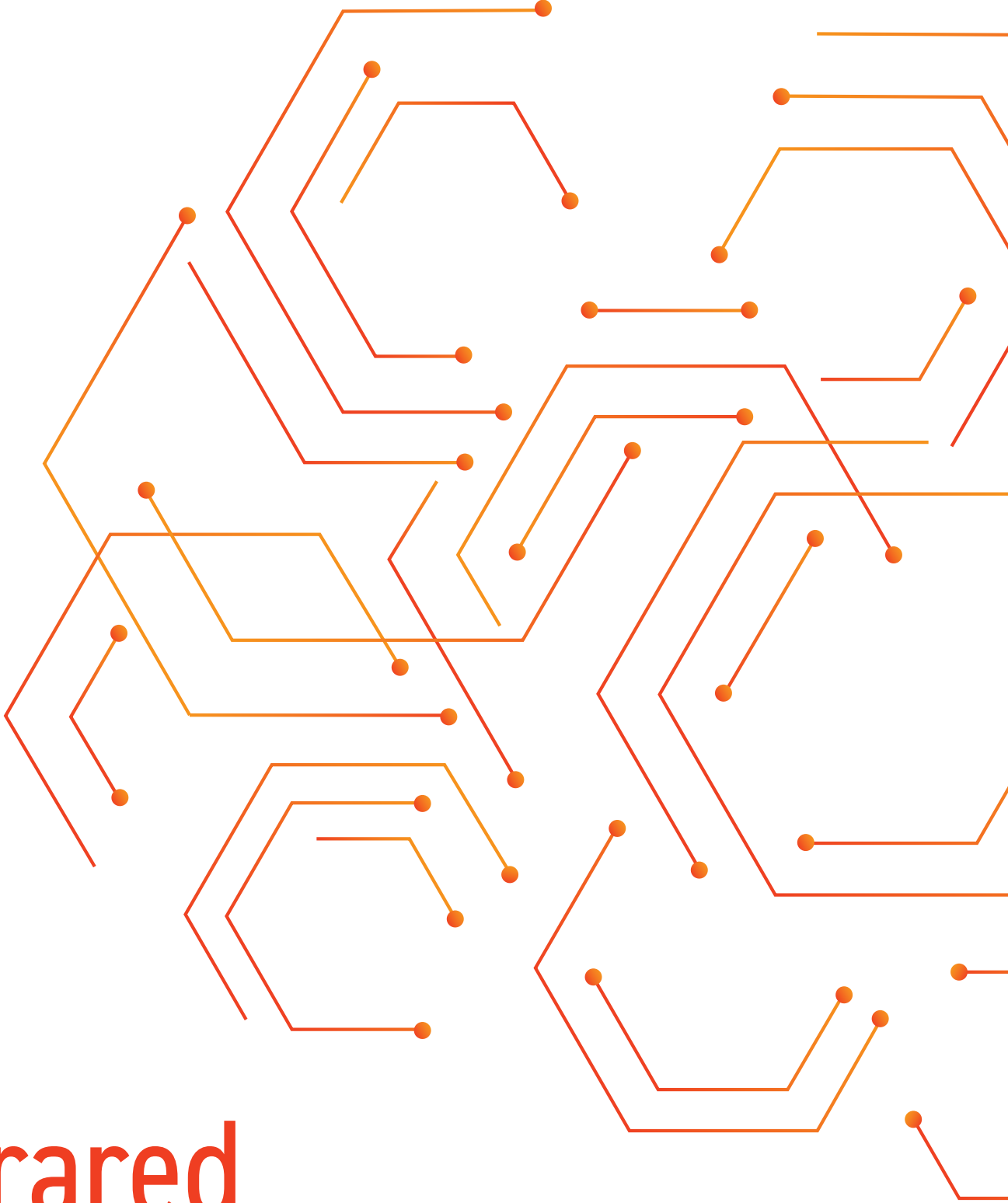


INFRARED SENSORS  
MeiDIR



# Infrared Sensors

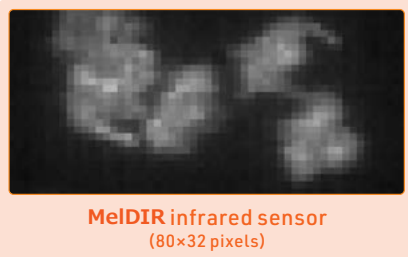
# Highly precise detection of people and objects using sensor technologies installed in satellites



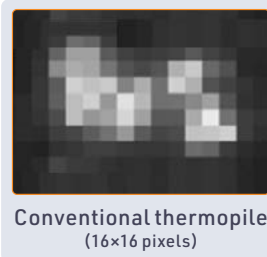
## Features

1

**High pixel count and high temperature-resolution enable highly precise understanding of people/object movement**



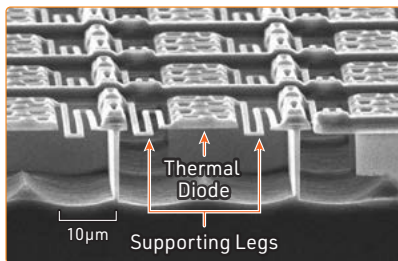
MelDIR infrared sensor  
(80×32 pixels)



Conventional thermopile  
(16×16 pixels)



Illustration Image

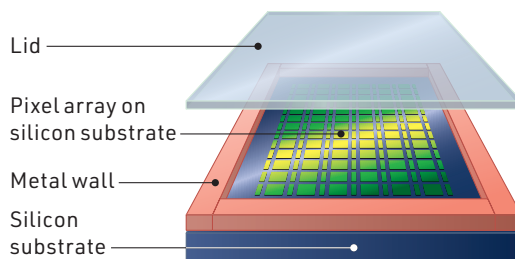


### Mitsubishi Electric Original Pixel Structure

- 1) The supporting legs are ultrathin thanks to the introduction of an innovative microfabrication technique. This makes it possible to transfer energy more efficiently without releasing heat, thereby enabling the pixel count to be increased and achieving higher image resolution.
- 2) The generation of electromagnetic noise is minimized by mounting the thermal diode and high-performance amplifier on the same chip, achieving high temperature-resolution.

2

**Vacuum-sealing, Chip-scale Packaging Contributes to Compact Space-saving Size**



### Vacuum-sealing, Chip-scale technology

- 1) Chip-scale packaging technology developed in-house eliminates the use of ceramic package and achieves vacuum state performance.
- 2) New packaging technology reduces product size to approximately 80% compared to conventional products\*1, enabling greater compactness and space savings.

\*1: Compared to general 16x16 pixel thermopiles available in market.

## Specifications

### High pixel count

- More tenfold compared to conventional products\*1 (80 × 60 / 80 × 32 pixels)

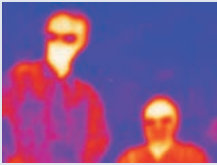

### High temp. resolution

- Fivefold compared to conventional products\*1 (by units of 0.1 °C, 100mK)

### Compact & Space-saving

- Reduces product size to 80% compared to conventional products\*1 (19.5 × 13.5 × 9.5 mm)



	MIR8060 series	MIR8032 series
Type No.	MIR8060B1*	MIR8032B1
Pixels	80 × 60 pixels 	80 × 32 pixels 
FOV	78° × 53° (Typ.)	78° × 29° (Typ.)
Frame rate	4 / 8 fps (selective)	4 fps (fixed)
Temp. resolution (NETD)	100 mK (Typ.)	100 mK (Typ.)
Operating voltage	3.3 V	3.3 V
Current consumption	50mA (Max.)	50 mA (Max.)
Product dimensions	19.5 × 13.5 × 9.5 mm	19.5 × 13.5 × 9.5 mm
Detectable temp. range	-5 ~ +60 °C	-5 ~ +60 °C
Interface	Serial Peripheral Interface (SPI)	Serial Peripheral Interface (SPI)

\*1: Compared to general 16x16 pixel thermopiles available in market.

★: New product



## Example Images by Application

		MeDIR infrared sensor (80×32 pixels)	Illustration Image
	Crime Prevention		
	Patient Monitor		
	People Counting		
	Smart Buildings		
	Temperature Sensitive Equipment		

\*Image was obtained after heating the surface of the face to simulate the condition of having a fever. The color tone of the image was adjusted to define the difference in body temperature (i.e., difference between high body temperature and normal body temperature is approx. 2°C). This cannot be used for medical diagnosis.

### ■ Sensor Technology Installed in Satellites

Thermal diode sensor technology adopted to install a Compact InfraRed Camera (CIRC) in the ALOS-2†



DAICHI-2 (ALOS-2)

† ALOS-2: Advanced Land Observing Satellite -2, which Mitsubishi Electric delivered to the Japan Aerospace Exploration Agency in 2014 and is now in operation

### ■ Installed in Kirigamine FZ-Z Series Room Air Conditioners

The newly developed "Move Eye mirA.I+™" is equipped with AI technology and high-resolution sensors.

A world-first\*2, the airflow from the air conditioner is detected with high accuracy\*3 and adjust to various residential environmental, leading to comfortability



Move eye mirA.I+™

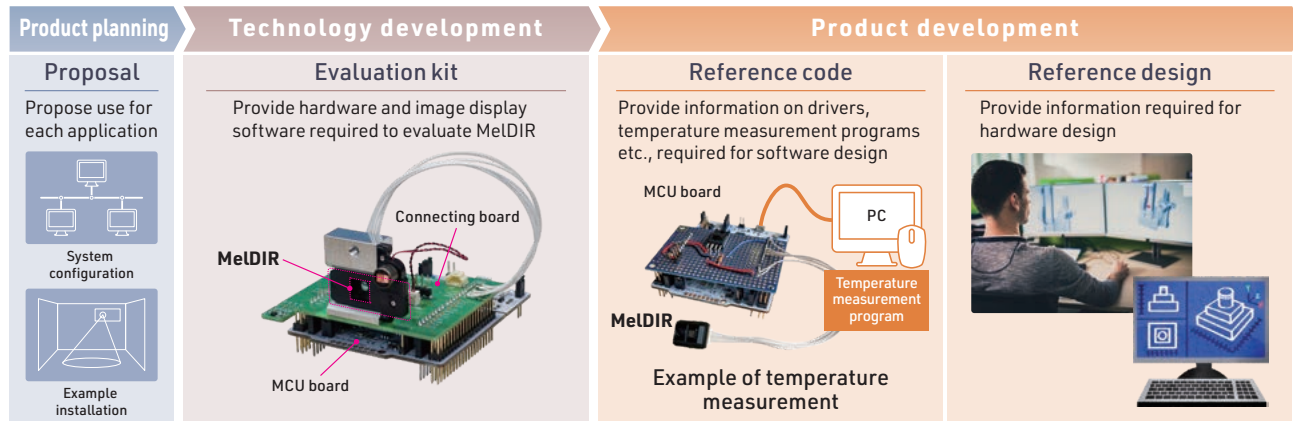


Image

\*2: Beginning Installation from FZ Series released in November 1, 2019, according to in-house research. \*3: Technology to infer airflow and strength based on temperature change at destinations of warm and cool air.

## User-Support Tools

### ■ User-support tools that contribute to reducing customer development time



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## MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
[www.MitsubishiElectric.com](http://www.MitsubishiElectric.com)