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

**Applications**

- Crime Prevention
- Smart Buildings
- Counting People
- Smart Factories
- Lighting/ Temperature Monitor
- Patient Monitor

**Features**

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

   - MelDIR infrared sensor (80x32 pixels)
   - Conventional thermopile (16x16 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**, enabling greater compactness and space savings.

**Features**

- Pixel array on silicon substrate
- Metal wall
- Silicon substrate

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Specifications

MIR8032 series

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type No.</td>
<td>MIR8032A1*/ MIR8032B1*</td>
</tr>
<tr>
<td>Pixels</td>
<td>80 x 32</td>
</tr>
<tr>
<td>Temp. resolution (NETD)</td>
<td>100 mK (Typ.)</td>
</tr>
<tr>
<td>FOV</td>
<td>78° x 29° (Typ.)</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>3.3 V</td>
</tr>
<tr>
<td>Current consumption</td>
<td>50 mA (Max.)</td>
</tr>
<tr>
<td>Product dimensions</td>
<td>19.5 x 13.5 x 9.5 mm</td>
</tr>
<tr>
<td>Detectable temp. range</td>
<td>-5 ~ +60 °C</td>
</tr>
<tr>
<td>Interface</td>
<td>Serial Peripheral Interface (SPI)</td>
</tr>
</tbody>
</table>

- **High pixel count**
  - Tenfold compared to conventional (80 x 32 pixels)

- **High temp. resolution**
  - Fivefold compared to conventional (by units of 0.1 °C, 100mK)

- **Compact & Space-saving**
  - Reduces product size to 80% compared to conventional (19.5 x 13.5 x 9.5 mm)

Example Images by Application

- **Crime Prevention**
- **Patient Monitor**
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Sensor Technology Installed in Satellites

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

- 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, the airflow from the air conditioner is detected with high accuracy and adjust to various residential environmental, leading to comfortability.

Sensor Technology Installed in Satellites

![Sensor Technology Installed in Satellites](image1.png)

[ALOS-2: Advanced Land Observing Satellite -2, which Mitsubishi Electric delivered to the Japan Aerospace Exploration Agency in 2014 and is now in operation](image2.png)

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for a greener tomorrow

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