

# Thermal Condition Monitoring

K6PM

Improve predictive maintenance of your equipment with continuous thermal monitoring



# Respond to issues quicker and avoid costly breakdowns on your equipment

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Contributing to "Zero-downtime" of facilities and equipment.

Continuously monitor the temperature of your equipment and improve predictive maintenance.

## User-friendly

Our unique algorithm will allow inexperienced personnel to recognize an abnormality and take action.

## Continuous thermal monitoring

Constant and remote monitoring of the temperature status is available, on-site maintenance is needed only when when abnormalities occur.

## Predictive maintenance

A prediction of temperature deviation over time provides early detection of an abnormal tendency and scheduled maintenance.





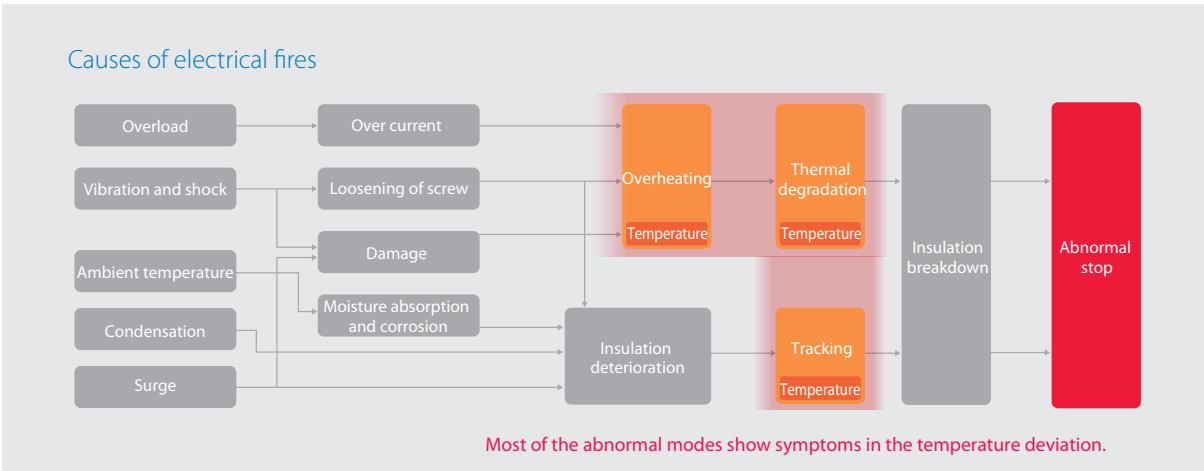
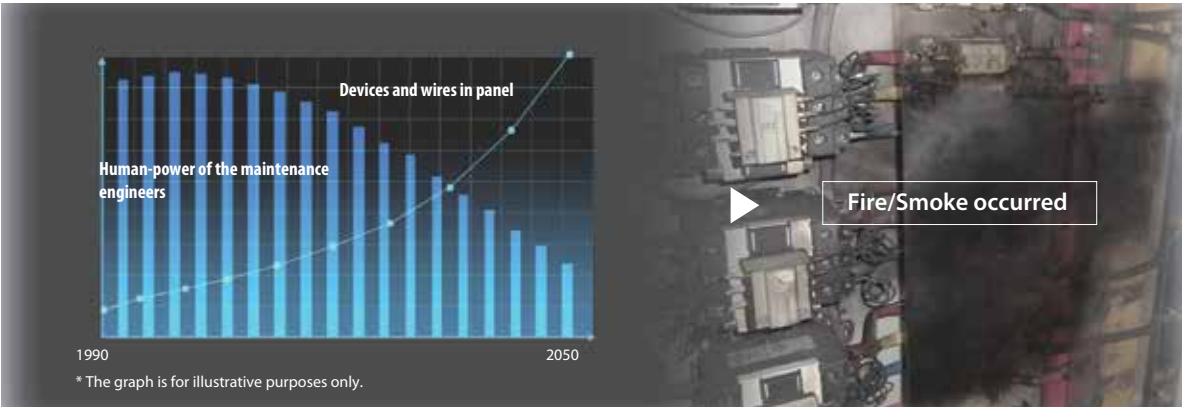


Note. This product is designed for monitoring of abnormal modes resulting , not for detecting a fire without any fault.

# Detect failures early, reduce downtime, and perform predictive maintenance

## Issues on site

The number of devices in the panel are increasing due to the higher functionality requirements of equipment and devices. On the other hand, available maintenance personnel have decreased over time.



Common Maintenance Practices

- Thermal monitoring and inspections require experienced personnel that can identify potential issues using special thermal monitoring equipment.
- Inspections only provide a snapshot of the thermal condition and does not provide real-time analysis.

Measurement method of the temperature in a panel

No constant measurement method is available for temperatures in a whole panel.

	A part of the panel	Whole panel
Constant monitoring	One-point monitoring with a thermocouple	
Periodic monitoring	Terminal cap for exothermic monitoring	Thermo viewer

Collecting and analyzing method of temperature data

Experience of skilled engineers is necessary, only partial data can be collected.

## Omron's Solution

- Thermal condition monitoring reduces the amount of manual inspections and continuously monitors the condition of the panel or component. It can be used as an early fire detection device.
- Automated collection and analysis reduces the setup and operation time.

## Measurement method of the temperature in a panel

Constant measurement is possible for temperatures in the whole panel.

## Collecting and analyzing method of temperature data

Identifying an abnormal part by automatic analysis, without help from skilled engineers.

## Thermal condition monitoring device K6PM-TH



## Key Applications

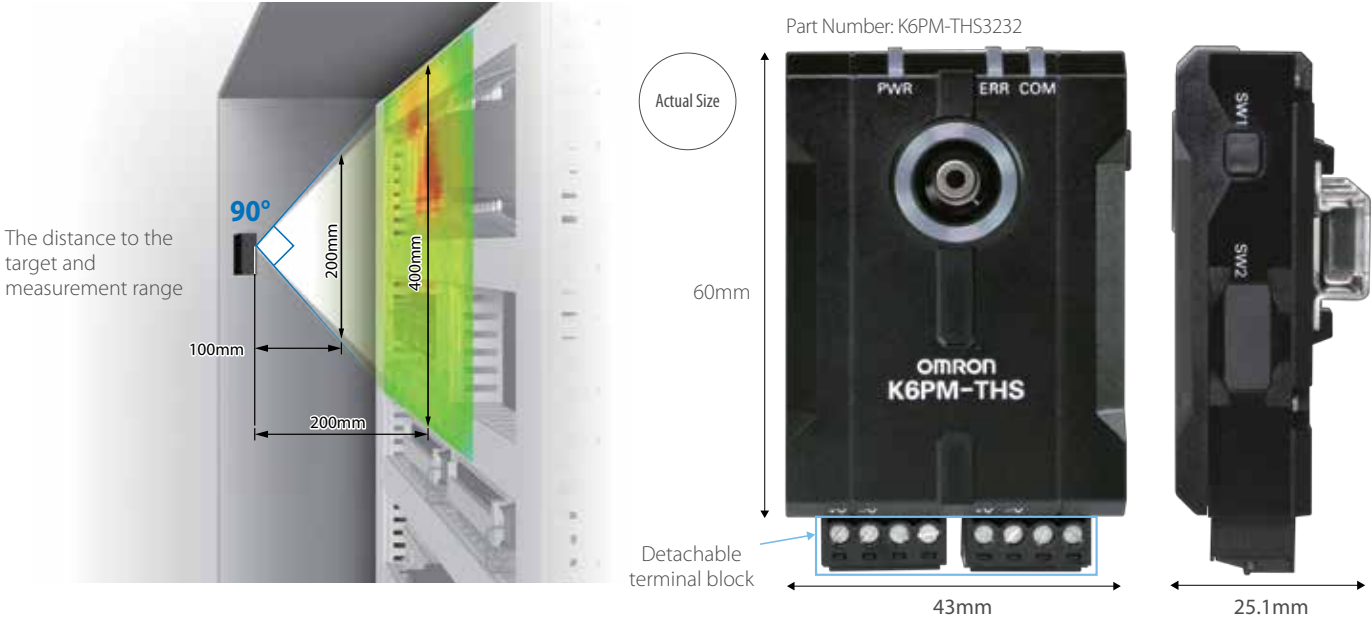
- High voltage motor control panels
- High voltage switchgear
- Power distribution equipment
- Power generation equipment
- Hydraulic equipment
- Bearings and gearboxes
- R & D Test Cells
- Data Centers
- Early fire detection





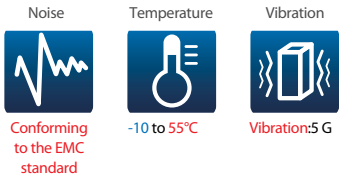
# Accurate temperature monitoring without the need of manual inspections

The Thermal Imaging Sensor's wide viewing angle and compact body allows for flexible installations.



### Environmental resistance

Assuring a normal operation under a harsh environment

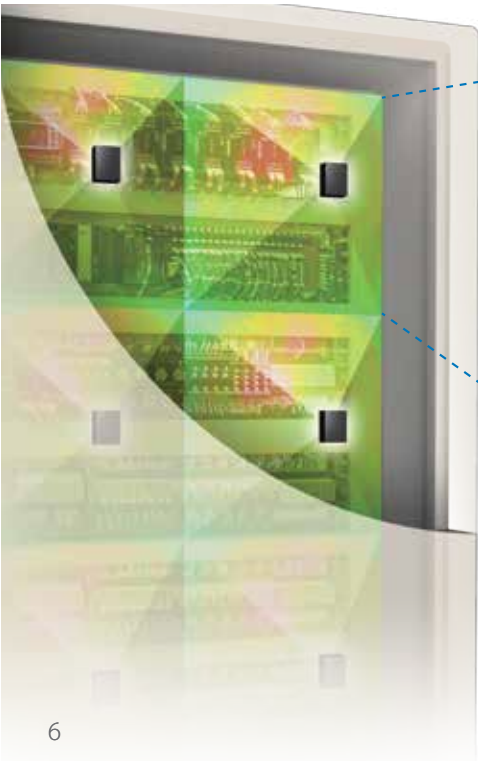


### Easy Mounting

Mount with a magnet or an after market camera mount

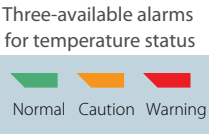


Each Thermal Imaging Sensor has 16 segments which allows multiple devices to be monitored with one sensor.



Threshold can be set to each segment of a 16-split thermal image

The resolution of a thermal image is shown as 32 × 32 cells.



Up to 31 K6PM-THS sensors can be connected with a main unit.



# Omron's proprietary algorithms eliminates the need for complex analysis and provides a faster setup time

## Features 1

Predicting temperature increases and alerts the user before the device reaches its critical warning level.

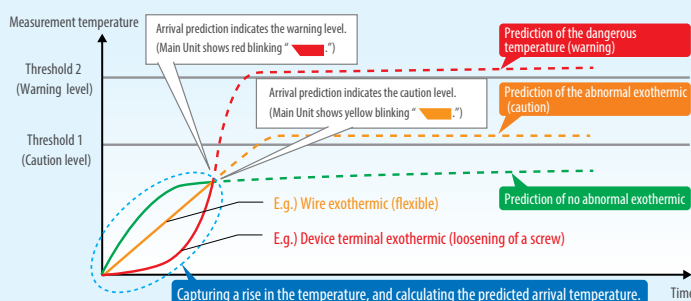
### Issues on maintenance at sites

Sometimes damages occur in early stages of temperature increases.

## Solution! Arrival prediction algorithm

PATENT PENDING \*

Predicting the arrival temperature from the temperature rise tendency, and properly determining abnormal temperature.



## Features 2

Maintains accurate temperature monitoring in environments with ambient temperature changes.

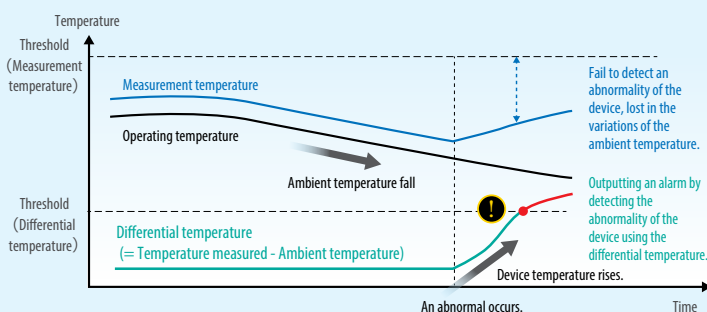
### Issues on maintenance at sites

Changes in ambient temperature may affect the component's thermal condition.

## Solution! Differential temperature detection algorithm

PATENT PENDING \*

Measuring the ambient temperature with the inside of the sensor, and constantly calculating the differential temperature from the device temperature. Capturing a temperature rise of the device properly, and determining the abnormality.



## Features 3

Reduce setup time with built-in Auto threshold feature

### Issues on maintenance at sites

For some users, it may be difficult to know what threshold to set for their device.

## Solution! Auto threshold set algorithm

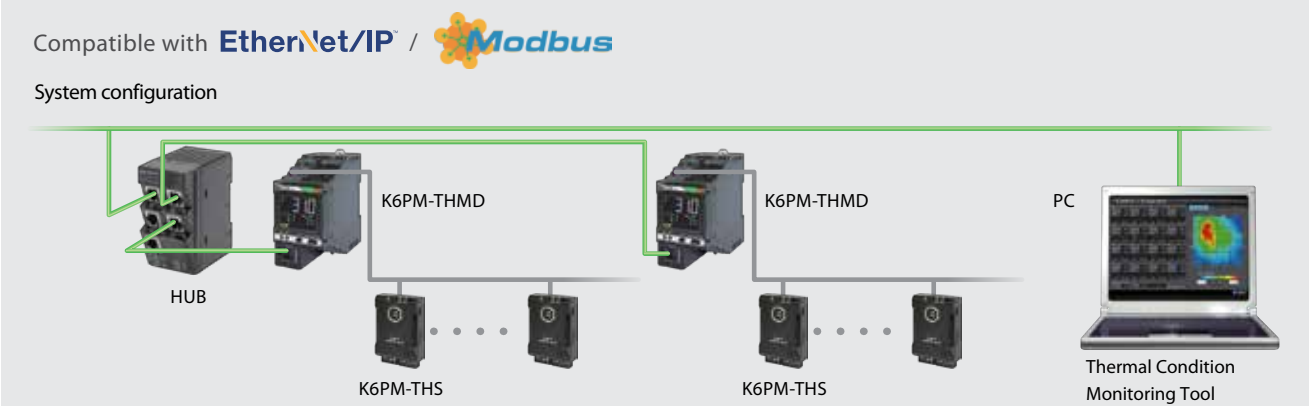
PATENT PENDING \*

Automatic calculation of the optimum threshold in accordance with the environment of use and the temperature of the measurement target.



# System configuration and software tool

Thermal Condition Monitoring Tool" enables the setting and logging of K6PM-TH. K6PM-TH linked with a PC via an Ethernet cable enables you to recognize the temperature status in panels and warning alarms at one view on a remote PC.

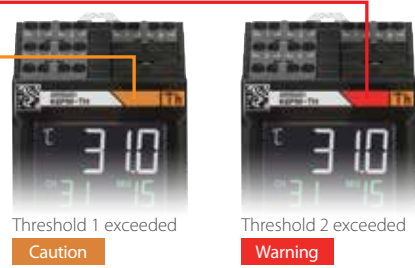


## With Thermal Condition Monitoring Tool you can...

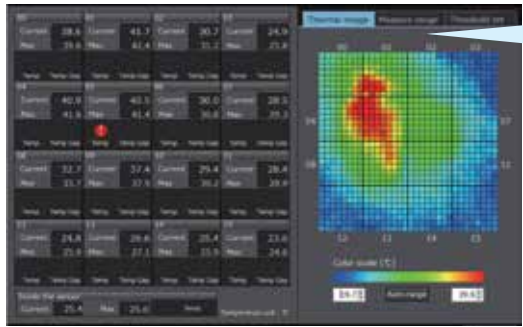
Constantly and remotely visualize the temperature status of the panel in multiple points where K6PM-TH are installed.



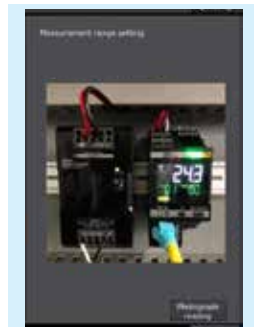
Display the status of the panel via K6PM-TH on the network. Up to five K6PM-TH can be connected.



Quickly know the analyzing results of the measurements at one view



Confirm the temperature status by simultaneously displaying the temperature data and thermal image. Easily identify the device which is outputting an alarm.



Images can be uploaded by user to document the sensor location.\*