Panel condition monitoring device
K6PM

Into the new era of maintenance by IoT
Remote monitoring with realtime analysis of the panel status

IoT change the style of maintenance

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

A shortage of human maintenance resources can lead to a device failure in a panel, which will increase a risk of serious accidents or facilities stop.

OMRON proposes you a new way of maintenance where every panel in your plant is under surveillance without human resource through the constant temperature monitoring powered by IoT.

Reduce both of maintenance labor and risk of abnormal stop by the maintenance utilizing constant remote monitoring

**Skillless**

Our unique algorithm will allow inexperienced personnel to recognize an abnormality and to maintain without help from skilled engineers.

**Labor-saving and maintenance-hours reduction**

Constant and remote monitoring of the temperature status is available, on-site maintenance is needed only when an abnormal occurs.

**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.
Automatic capture of temperature deviation in a panel labor-saving and significant risk mitigation of abnormal

Issues on site
Parts to check are increasing as devices and wires in a panel increase for high-functioned facilities and equipment. On the other hand, maintenance frequency is decreasing due to shortage of the maintenance engineers, resulting in a higher risk of accident.

Importance of the temperature monitoring
Device failures have various causes; most of which leads to insulator breakage due to overheating, resulting in an abnormal stop.

Most of the abnormal modes show symptoms in the temperature deviation.

Current way of maintenance
- A few skilled maintenance engineers manually check relying on their experiences.
- Their checking scope covers only a part of the panel, making it impossible to constantly monitor the status of whole panel.

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<th>Measurement method of the temperature in a panel</th>
<th>Collecting and analyzing method of temperature data</th>
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<td>No constant measurement method is available for temperatures in a whole panel.</td>
<td>Know-how of skilled engineers is necessary, only partial data can be collected.</td>
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for maintenance labors, to achieve both stop

New way of maintenance
- Covering the skilled maintenance engineers, the thermal condition monitoring device constantly monitors temperatures of the whole panel.
- Automated collection and analysis of the temperature data enables to identify a device failure automatically.

Measurement method of the temperature in a panel collecting and analyzing method of temperature data
Constant measurement is possible for temperatures in the whole panel. Identifying an abnormal part by automatic analysis, without help from skilled engineers.

Thermal condition monitoring device K6PM-TH

Measurement applications using K6PM-TH
- An abnormal exothermic of wiring
- An abnormal exothermic of a transformer
- An abnormal exothermic of devices in a panel

Our shared Value Design for Panel (herein after referred to as “Value Design”) concept for the specifications of products used in control panels will create new value to our customer’s control panels.
Visualizing the temperature in a panel accurately without opening the panel door

Optimal installation regardless of the locations thanks to the wide viewing angle and the compact body.

Wide viewing angle lens

The distance to the target and measurement range

Compact

Infrared temperature sensor (Special thermal imaging sensor) K6PM-THS

Actual Size

60mm

Detachable terminal block

43mm

25.1mm

Environmental resistance

Assuring a normal operation under a harsh environment

Noise

Temperature

Vibration

Conforming to the EMC standard

Noise: -10 to 55°C

Vibration: 5 G

Easy mount

Mount with a magnet or a commercially available attachment on the backside of the door is available.

Backside: Magnet (include)

Attachment (Commercial product)

Identifying an abnormal device by segmenting the thermal image.

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

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

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

Main Unit

Measurement temperature (°C/°F)

Segment number

Sensor number

Alarm output
Contributing to an early detection of abnormality by our proprietary algorithm

**Features 1** Predicting the temperature rise deviations, and notifying the dangerous level of abnormal exothermic.

**Issues on maintenance at sites**

Even a stable temperature of the device can lead to a serious abnormality over time depending on the cause of abnormality; however, analysis including history of temperature variation is very difficult with non-continuous temperature monitoring.
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.

System configuration

Compatible with **EtherNet/IP** / **Modbus**

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.

Quickly confirm the exothermic part by displaying the measurement image.*

* The measurement image should be captured by customers.