

# THERMINTELLI SYSTEM INTRODUCTION

**Temperature Monitor & AI Predictor**



# SYSTEM INTRODUCTION

CTC ThermIntelli Temperature Monitoring and Prediction System (Temperature Monitor & AI Predictor) is designed in CTC Intelli UK. The hardware of the whole system is developed and manufactured by CTC Intelligence (Shenzhen) Technology Co., Ltd. The monitoring system includes an active online temperature monitor and a temperature predictor based on CTCI AI technology. The on-line temperature monitor feeds all temperature information from each observation point to the local CTC ThermIntelli-server. The AI predictor (patent pending) identifies the reasons behind each temperature rise and responsible for alarming correctly with minimum false alarms. The active system allows the power management team to understand the distribution panel thoroughly and provide essential information that enables the team to react to potential hazards effectively and efficiently.



- Real-time Hotspot Monitoring with infrared sensors and resistance thermal detectors
- Live data collection and display through a reliable system of data hubs to user-friendly human-machine interface
- Artificial intelligence temperature recognition and fault prediction (patent pending)
- Developed with Cambridge University Engineering Department technology

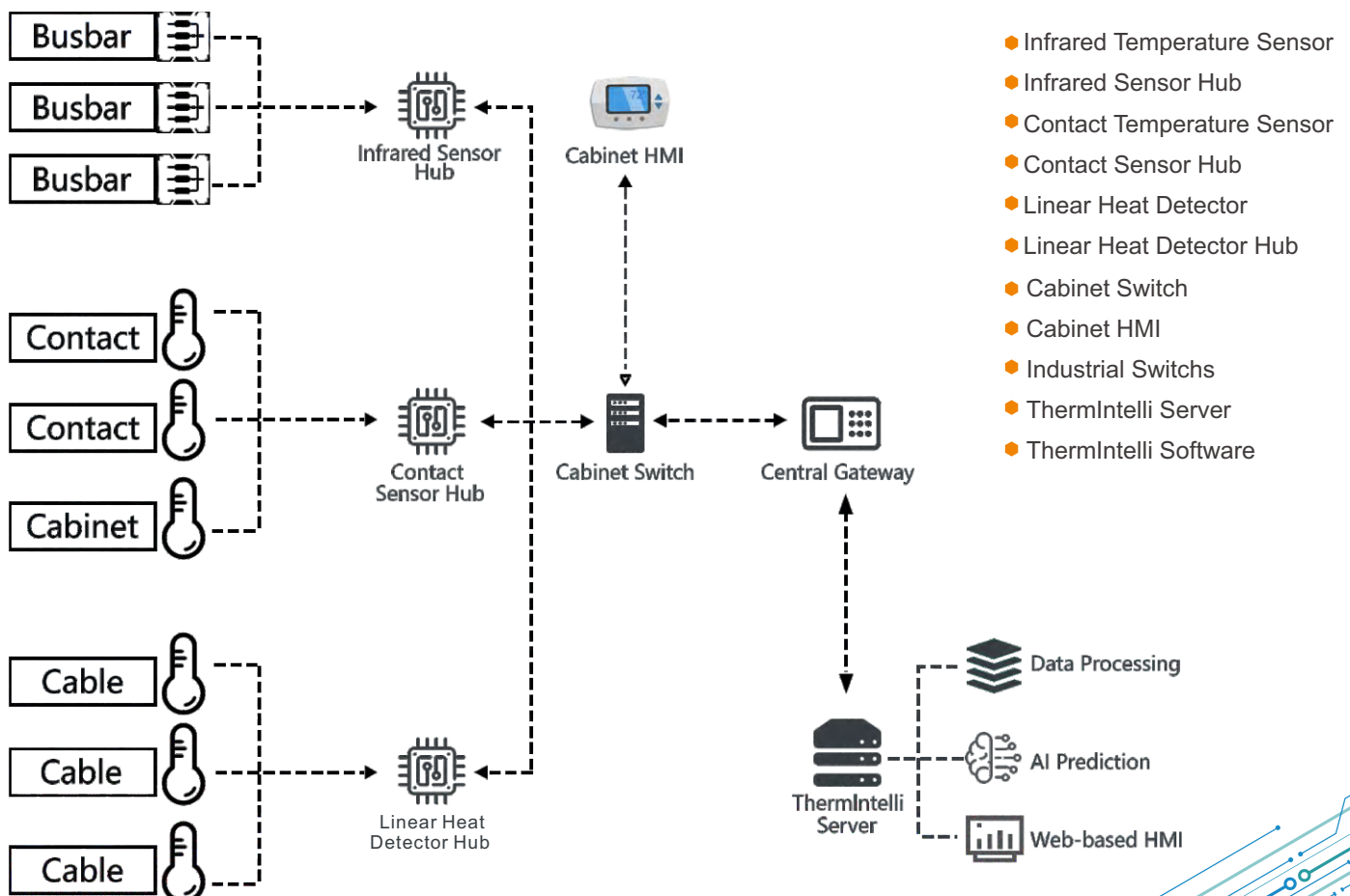
## ThermIntelli Temperature Monitor & AI Predictor

- ✓ The main system functions are electrical power supply system abnormality alarm based on temperature monitoring of electrical conductors and joints, and fault prediction using artificial intelligence (AI) technology.
- ✓ The system uses infrared (IR) sensors to monitor busbar temperature, contact sensors to monitor cable temperature and air temperature sensor for the room temperature. All sensors designed to operate in the electrical enclosure or machine room environment.
- ✓ Sensor data are collected with the Flexi-DataHub (FDH) located in each enclosure. The FDH may be tailor made for each enclosure, connected to all sensors in our product range, collecting digital or analogue outputs and supplying power.
- ✓ The Flexi-DataHubs will use Ethernet connection to communicate with the CTCThermIntelli-Server (CIS), transmitting sensor data and receiving live instructions.
- ✓ CTCThermIntelli-Server is a database server for data collection and storage, also serving the Live Monitoring and Reporting System (LMR).
- ✓ The Live Monitoring and Reporting System is a graphical interface for operators to check live and historical temperature data for all sensors. The system can be accessed from designated embedded interface units or any registered computer terminals by any authenticated users using web browser.
- ✓ The CIS can also collect other operation data (e.g. current, voltage and frequency) and provide live predictions on faults and reliability.

# INTELLIGENT MONITORING

CTCI Temperature Monitor & AI Predictor enables real-time thermal data acquisition and forecasting. The central server processes the data and displays the indicative thermal results via CTCI HMI display. Further, the future thermal trend lines, here named AI prediction based on CTCI deep learning technology, emphasise the adequate actions the management team required to commit. The cabinet HMI allows the timely thermal information to be checked in each distribution/panel room by maintenance engineers. Via CTCI protocol adaptor, all thermal information can be stored and relayed to required building management system for data backup and display.

## System Components



# Sensor Specifications

## Contact Temperature Sensor

Operation Temperature: -50-300 °C

Accuracy:  $(0.15+0.002*|t|)$  °C, |t| is actual absolute temperature

## Infrared Temperature Sensor

Operation Temperature: -40-125 °C

Accuracy: 0.5 °C, when measure temperature is 0-60 °C

## Linear Heat Detector

Maximum Recoverable Temperature: 120 °C

Rated Activation Temperature: 85 °C

## Product Catalogues

| Product Type                                | Item Number            |
|---|------------------------|
| Infrared Temperature Sensor                 | CTCI-Thermal-ITS       |
| Infrared Sensor Hub                         | CTCI-Thermal-ISH       |
| Contact Temperature Sensor                  | CTCI-Thermal-CTS       |
| Contact Sensor Hub                          | CTCI-Thermal-CSH       |
| Linear Heat Detector                        | CTCI-Thermal-LHD       |
| Linear Heat Detector Hub                    | CTCI-Thermal-LHDH      |
| Cabinet Switch                              | CTCI-Thermal-CSW       |
| Cabinet HMI                                 | CTCI-Thermal-CHMI      |
| Industrial Switch                           | CTCI-Thermal-SW        |
| ThermIntelli Server                         | CTCI-Thermal-Server    |
| ThermIntelli Monitoring Software            | CTCI-Thermal-MS        |
| ThermIntelli Predictor                      | CTCI-Thermal-Predictor |
| ThermIntelli Communication Protocol Adaptor | CTCI-Thermal-CPA       |

## Contact Us



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