WESTCO
ELECTRICAL & EQUIPMENT CORP.

EXERTHERM®
24x7 Thermal Monitoring

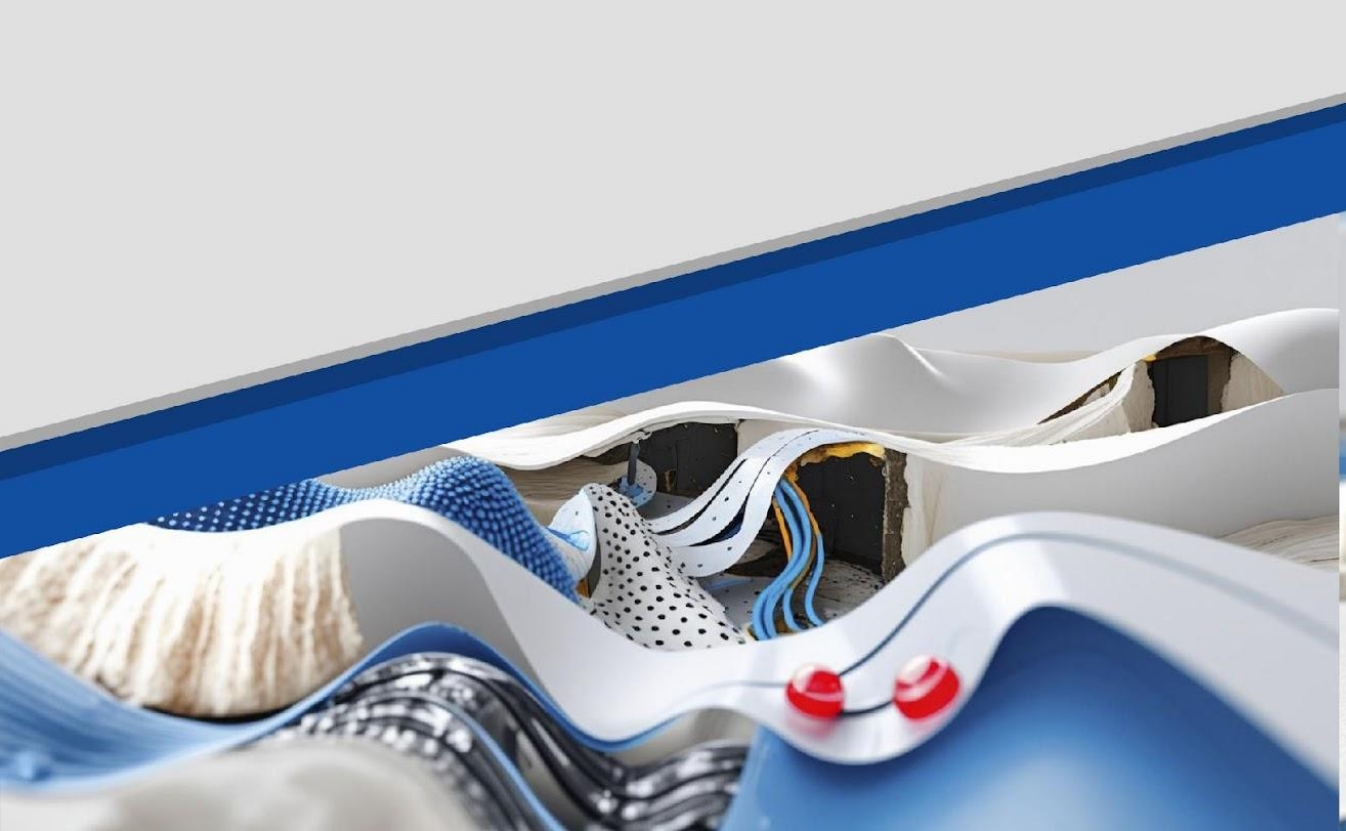
# CONTINOUS THERMAL MONITORING

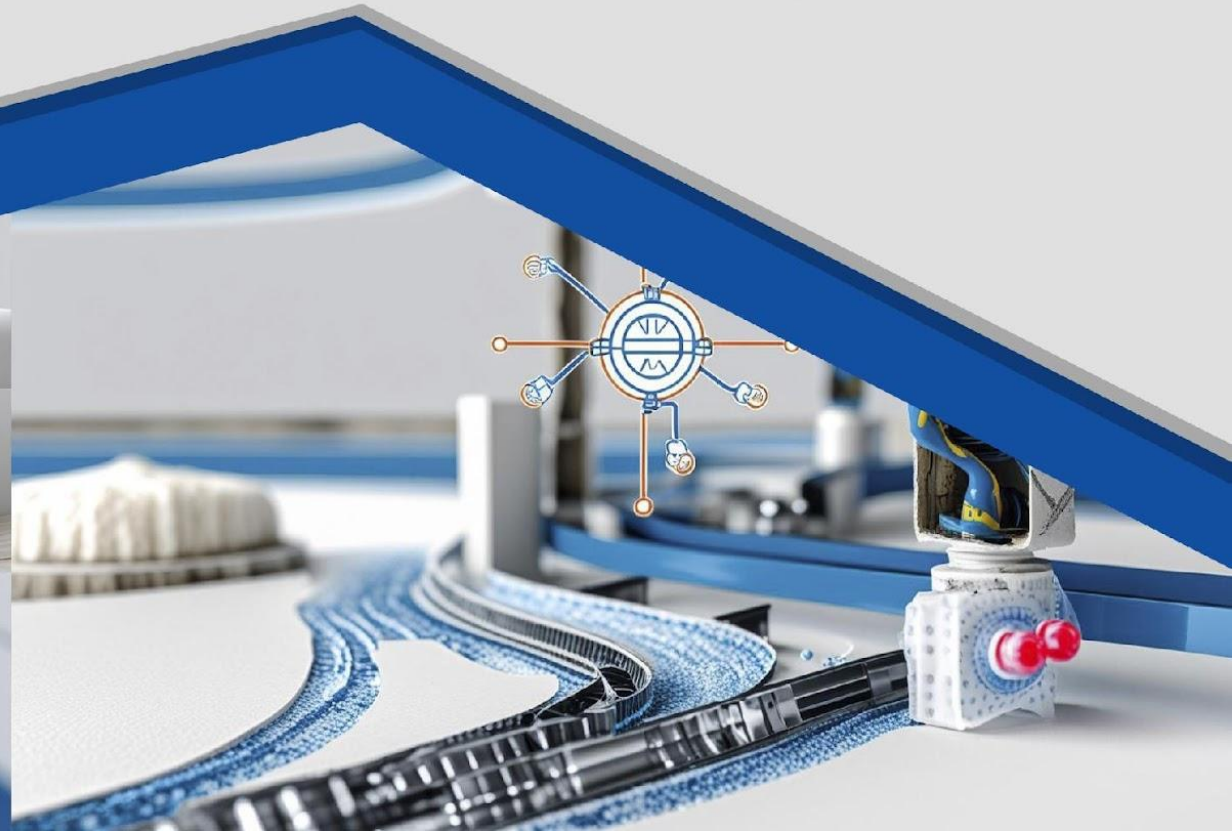
*How to Truly Conquer the Challenge of Relentless 24/7 System Watch*

Designed for early warning.

Detects thermal anomalies—the most common early sign of issues.

Prevent major arc faults, equipment failures, and costly unplanned downtime before they even start.





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# Product Overview

## EXERTHERM CONTINUOUS THERMALMONITORING

Exertherm CTM is a continuos thermal monitoring system that provides real-time temperature data for mission-critical electrical connections, ensuring safe and reliable operations 24/7.

- Non-invasive sensors for accurate temperature detection
- Early warning system for thermal anomalies
- Reduces unplanned downtime and equipment damage

# THE CHALLENGE AND HOW CTM SOLVES IT

## PROBLEM

- Frequent electrical faults, overheating, and unplanned shutdowns
- Manual inspections are time-consuming and reactive not preventive.

## SOLUTION

- Exertherm CTM continously Monitors Switchgear
- Detects issues early before failures occur
- Provides 24/7 real-time insights to prevent costly downtimes.


PROBLEM → CTM → RELIABLE SYTEM

# BENEFITS OF CONTINUOS THERMAL MONITORING

Reduce the likelihood of electrical failures and improve operational stability with 24x7 monitoring.

Reduce electrical fire or explosion risk resulting from arc flash due to compromised electrical assets.

Minimize human interaction with potentially faulty assets to increse personnel and on-site safety.

lower the need for additional costs and the unnecessary untrusion of unplanned maintenance.

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# MV SWITCHGEAR TEMPERATURE MONITORING


This product offers Continuous Thermal Monitoring solutions designed to protect critical electrical infrastructure by monitoring medium voltage (MV) switchgear components in real-time.
The system uses Infrared (IR) Sensors to detect and alert on abnormal temperature changes, addressing a leading cause of electrical failures..

# SYSTEM FUNCTIONALITY

**Sensor Type & Power:** The key component is the **IR Sensor** (Infrared Sensor) which uses a **non-contact** method to measure heat. Crucially, it's a **non-powered solution**; **it generates its own power supply** from within the electrical asset it's monitoring, meaning it requires no external batteries or power source ("super efficient").

**Measurement:** These sensors are placed at critical points like the main incomer breakers and ACB feeders (line and load side) to measure the **infrared radiation** emitted, providing real-time temperature data.

**Data Transmission & Processing:** The data collected by the IR Sensors is sent to an Exertherm Modbus Datacard or other connectivity options (like the **ARM XL** module). This Modbus interface digitizes the thermal data, allowing it to be integrated into existing control systems or a Building Management System (BMS) for **24x7 continuous thermal monitoring.**

**Purpose:** By tracking temperature changes **(thermal cycling)** in real-time, the system provides an **early warning** of potential issues like loose or corroded connections that cause localized heating, preventing electrical failures, arc flash events, and unplanned facility outages.

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# Technical Standout Features

The Exertherm MV Switchgear solution stands out primarily due to its unique sensor power and design.

**Self-Powered IR Sensors:** It uses **non-contact Infrared (IR)** sensors that are **non-powered** and **permanently installed** inside the switchgear. This is a critical technical difference: the sensor creates its **own power supply** from within the asset it monitors, eliminating the need for batteries or external wiring to the sensor itself.

**Continuous, Direct Monitoring:** This self-sufficiency enables **24x7, real-time Continuous Thermal Monitoring (CTM)** of critical internal connections (like bus bar joints). In contrast, many competitor methods rely on periodic thermal imaging scans or limited external viewing (via IR windows).

**Zero Maintenance & Reliability:** The non-powered, "fit and forget" design coupled with a **lifetime guarantee** on the sensor hardware significantly reduces maintenance requirements and operating costs, offering a high degree of confidence and simplified operations.

# APC CORE

## SATIR

Introducing the SATIR APC, a new thermal camera that is suitable for Process Control and Monitoring Applications. It can monitor critical components for overheating 24/7.

The APC is compact and light-weight weighing only 450g. This means it is a very adaptable product allowing it to fit easily into any processing machine for industry monitoring. The APC thermal camera is a highly integratable module, it only requires 8-12V DC power supply which means it can run off a battery if there is no power supply available nearby.

The APC has a 256x192 IR detector which has athermal sensitivity of ≤0.06°C@30°C, which allows it to detect anything that is over-heating easily. For example it can be used to monitor conveyor belts to check bearings as when these are broken they can cause friction which generates heat. It also has a digital camera with a resolution of1920X1080 inside the camera, allowing dual image presentations of thermal and digital.
It also has detection functions such as over-temperature alarm and motion detection.

# Data Collection Mechanism

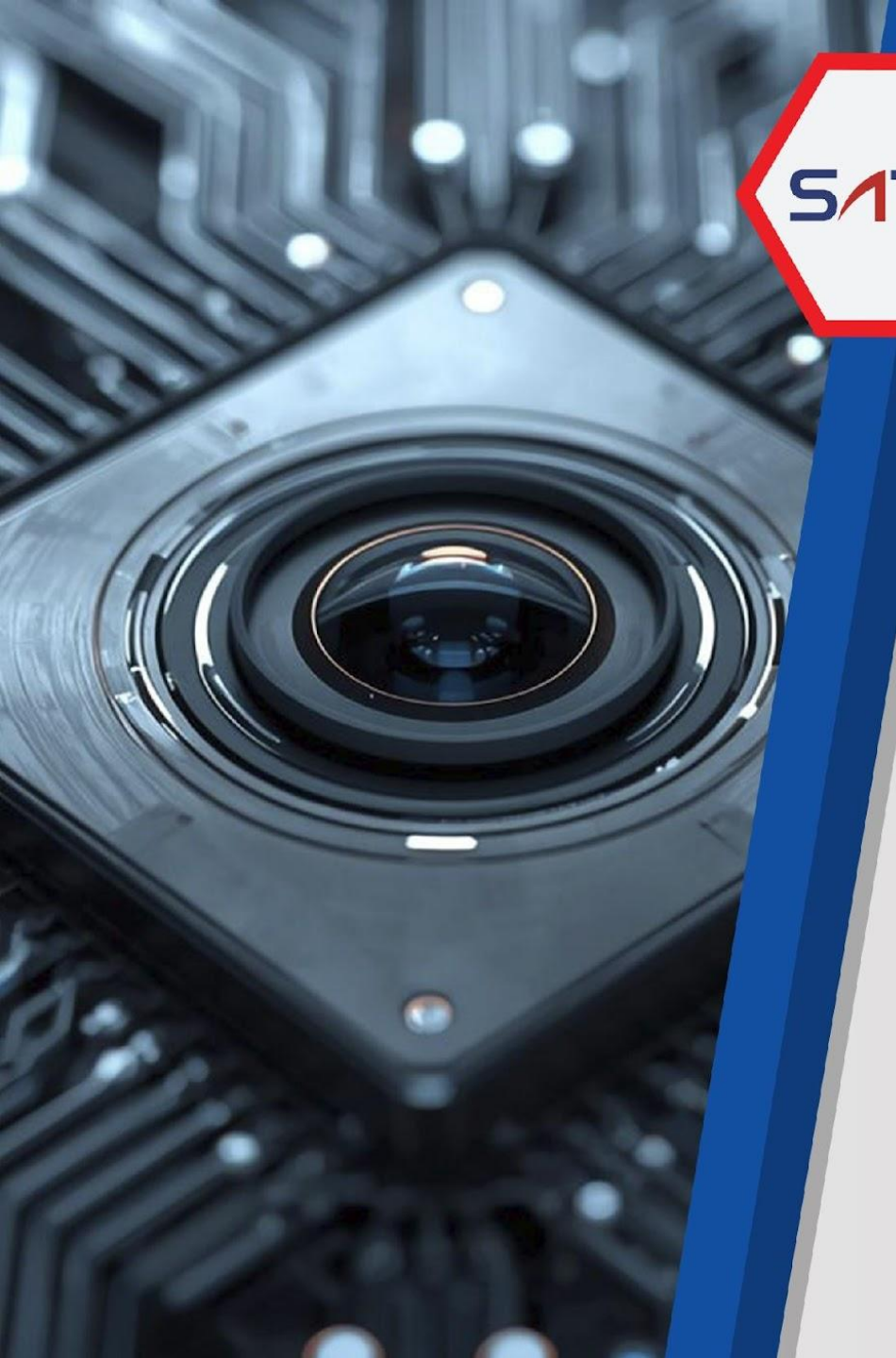
## 1. Thermal Data (IR Detector)

**Detection:** The core component is a **256x192 IR detector**. This sensor collects **infrared radiation (heat)** naturally emitted by objects.

**Measurement:** The detector measures the intensity of this IR radiation and converts it into electrical signals.

**Sensitivity:** The high thermal sensitivity (≤0.06 C@30 C)∘ means it can detect very small temperature differences.

**Output:** This raw data is processed internally to generate a **thermal image** (or thermogram) where different colors represent different temperatures.
This is the **thermal imaging data.**



SATIR

# Data Collection Mechanism

## 2. Visual Data (Digital Camera)

**Detection:** An integrated **digital camera** with **1920x1080 resolution** captures **visible light.**

**Output:** This generates a standard **visual image** (or digital image) of the scene, providing context.


# Data Collection Mechanism

### 3. Data Integration and Output

**Dual Image:** The device can combine the thermal and visual data for **dual image presentations,** allowing operators to see the heat profile overlaid on the real-world scene.

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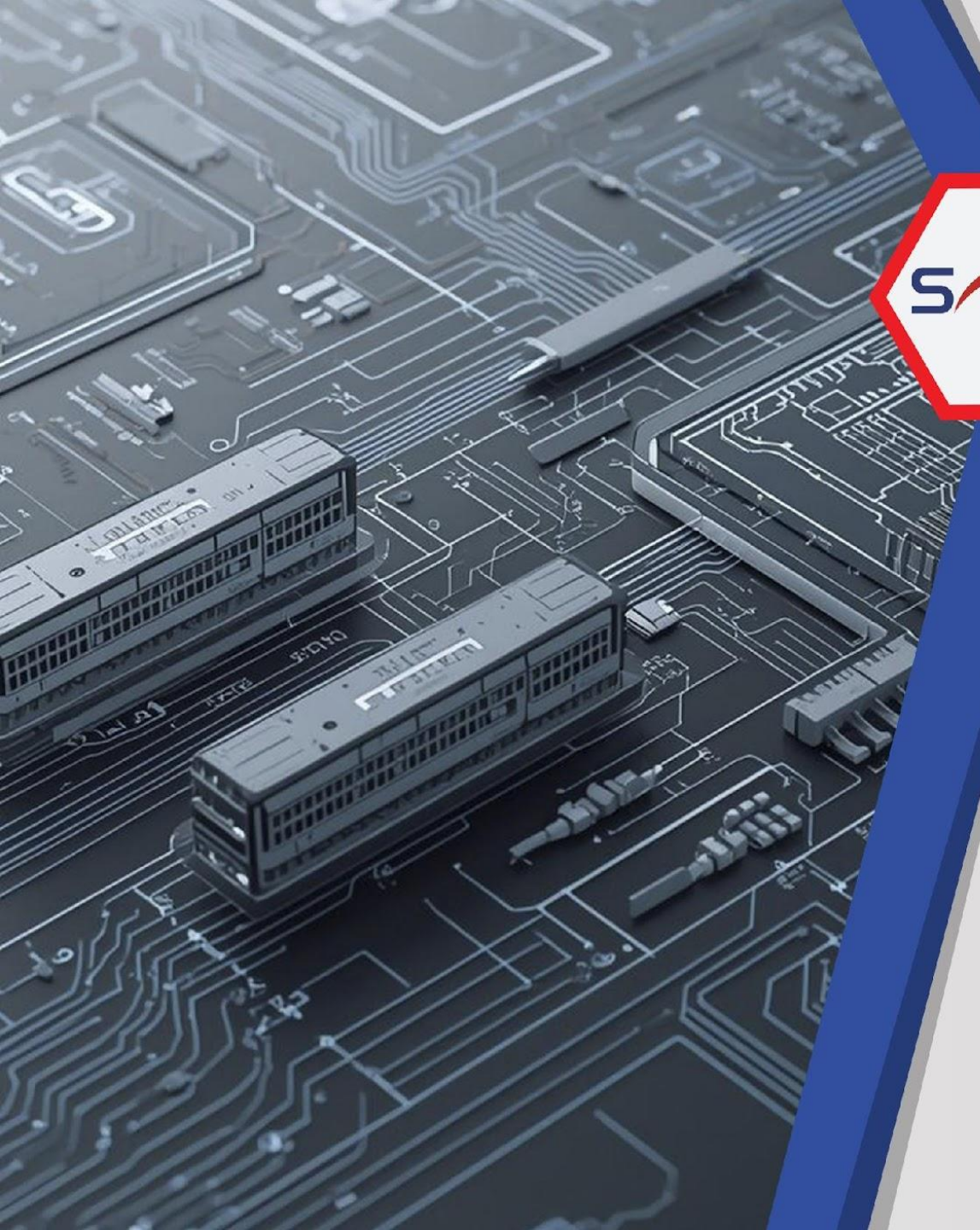
**Intelligent Functions:** The camera processes the raw data on-board to enable intelligent detection functions like:

- **Temperature Alarm:** Triggered when the thermal data exceeds a user-defined threshold, indicating overheating.
- **Motion Detection:** Uses changes in the visual or thermal data frame-to-frame to detect movement.

**Data Transfer:** The camera uses standard protocols like ONVIF, SDK, or CGI to transfer the collected and processed data (both images and alarm/status information) over a network for remote Process Control and Monitoring.



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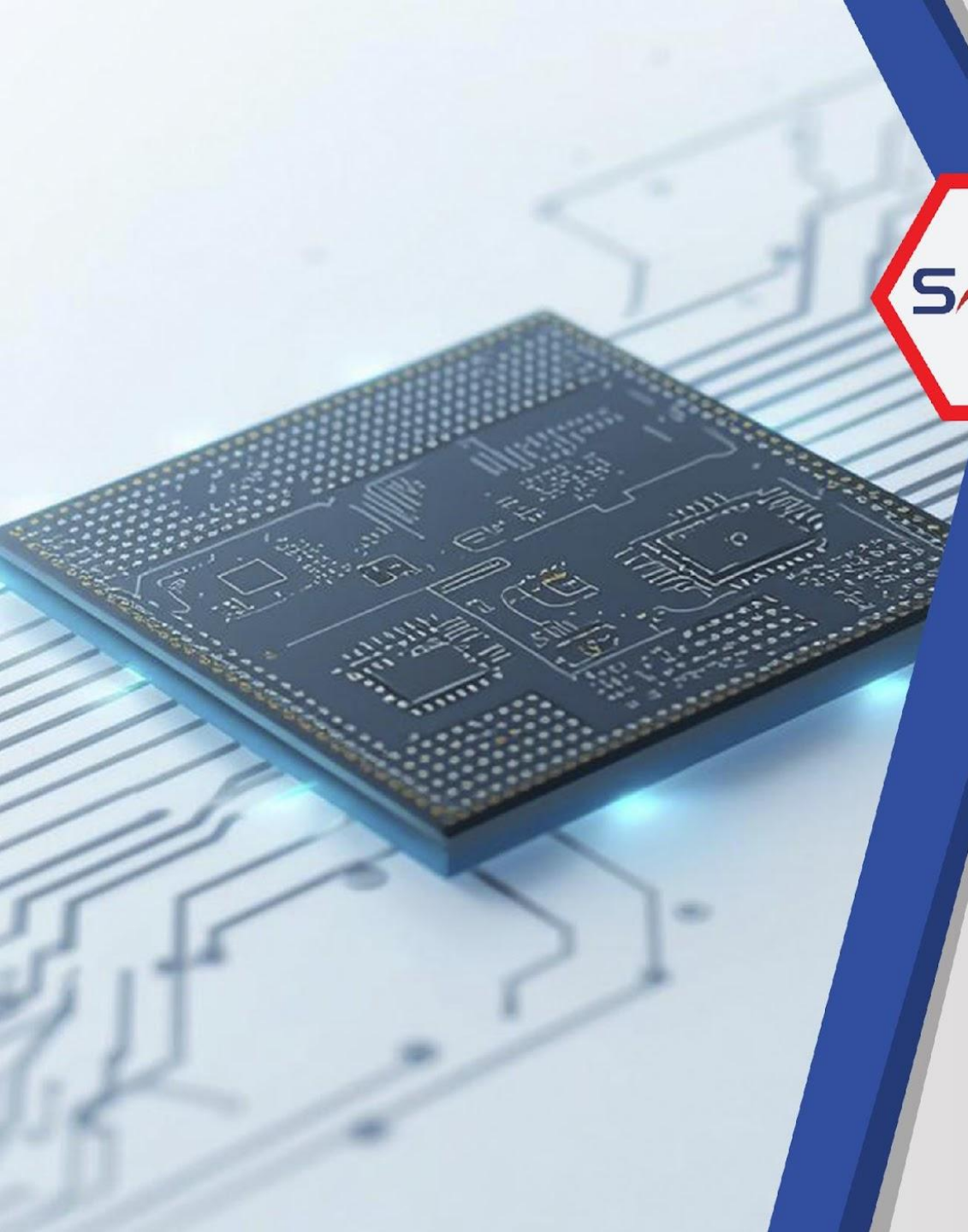
# TECHNICAL STANDOUT FEATURES

## System Integration & Footprint

The APC is exceptionally compact and lightweight (only 450g), making it highly adaptable and easy to integrate into existing industrial machinery or tight spaces. Its low power requirement (8-12V DC) allows for flexibility, including battery operation, which is a significant advantage over competitors that may require a dedicated, higher-voltage AC power source.



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## TECHNICAL STANDOUT FEATURES

**It offers a good balance of resolution and sensitivity for its class:**

**IR Detector:** 256×192 resolution.

**Thermal Sensitivity** (NETD): ≤0.06°C@30°C (60 mK), which is a **high sensitivity** value for detecting subtle temperature changes, crucial for early overheating detection in process control.


SATIR

## CONNECTIVITY & INTELLIGENCE

The device supports **Visual & Thermal Imaging** via a dual camera setup (IR and a 1920×1080 digital camera), offering combined visual and thermal data. Furthermore, it boasts **ONVIF/SDK/CGI Compatibility**, which ensures easy integration into standard network video recording (NVR) and larger industrial control systems, alongside **Intelligent Detection Functions** like over-temperature alarms and motion detection.

# WANT TO KNOW HOW TO CHECK YOUR SYSTEM 24/7?

CTM uses highly accurate, non-invasive sensors installed directly on your mission-critical switchgear and connections. It delivers immediate, real-time temperature readings to your monitoring station.

The Exertherm CTM (Continuous Thermal Monitoring) system—a key part of the WESTCO product line—provides that critical, ongoing insight.

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# WE'RE HERE TO HELP YOU BUILD RELIABLE ELECTRICAL SOLUTIONS.


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