Oil and Gas
Case Study

Motor Control Centers: How MCCs Keep Oil Refineries Running

Energy conglomerate replaced periodic thermography with always-on proactive monitoring

EXERTHERM by EATON

Reliability of MCCs
is vital in oil refineries to prevent costly outages and ensure personnel safety, especially from hidden faults.

Predictive maintenance
is replacing reactive approaches to reduce risks and improve operational efficiency.

Safety is enhanced
by minimizing the need for personnel to access live electrical panels, lowering exposure to hazards.

End-User Background

A leading, multi-site oil & gas conglomerate in the Middle East operates mission-critical production assets with stringent uptime and HSE requirements. Their maintenance teams aimed to reduce unnecessary exposure to live equipment while gaining real-time visibility into the health of MCCs – especially in rear drawer contact areas where faults typically originate.

Operational Context

Historically, temperature monitoring within the refinery relied on periodic thermographic inspections. While effective for capturing momentary data, this approach presented several limitations:

- Risked missing emerging faults between inspection cycles.
- Increased personnel exposure to energised compartments.
- Created dependency on scheduled outages for access.

Deployment Strategy

To enhance operational reliability and uptime, the operator retrofitted hundreds of MCC drawers with Exertherm's Continuous Thermal Monitoring (CTM) solution. Each drawer was equipped with two MMS kits positioned to monitor critical contact points continuously:

- One kit installed inside the MCC drawer to monitor the line and load side connections.
- A second kit placed across the input and output connection of the contactors to detect thermal anomalies.

Tangible Outcomes

The deployment of CTM across MCC drawers delivered measurable improvements in operational performance, safety, and maintenance strategy.

Key benefits included:

Protected uptime

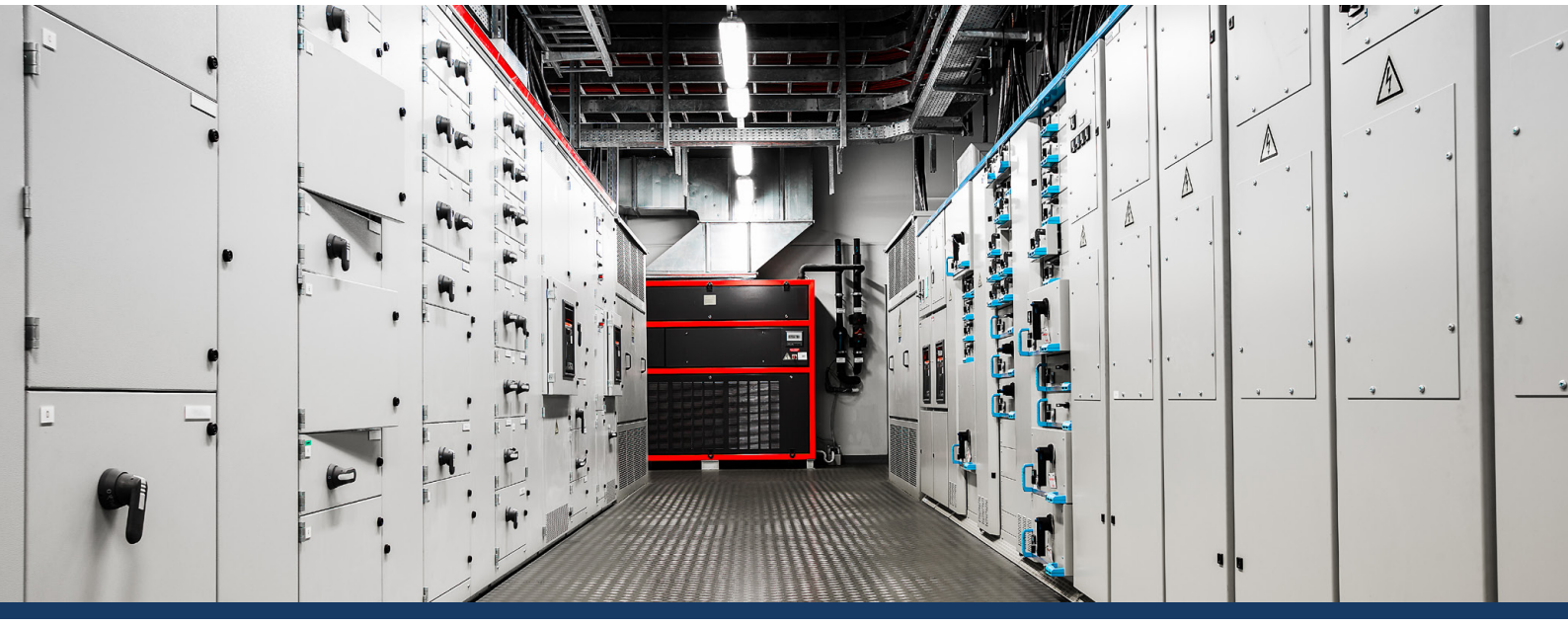
24/7 monitoring enabled early detection of thermal anomalies, preventing fault escalation, hence avoiding costly downtime or equipment damage.

Safer maintenance

Remote monitoring reduced manual inspection requirements and eliminated direct contact with hotspots, improving personnel safety.

Standardization

Following the successful retrofit, the operator formally recommended CTM as the standard approach for all future MCC projects.



Financial Impact

The implementation of CTM delivered meaningful cost savings across several operational areas:

Elimination of thermography

Removing the need for periodic thermographic inspections on MCC drawers resulted in consistent annual savings.

Increased uptime

Continuous monitoring helped prevent unplanned outages, enabling greater production output and improved operational efficiency.

Predictive maintenance

Moving from routine to condition-based maintenance reduced unnecessary interventions and streamlined resource allocation.

ROI: Exertherm vs. Other Technologies

The real financial advantage came from choosing Exertherm's CTM technology specifically. The figures below demonstrate the significant financial impact of choosing Exertherm over other thermal monitoring technologies.

Cost Category	Other Technologies	Exertherm CTM	Savings & Benefits
Purchase Price	$X,000	$X,000	**Same upfront cost**
Installation Costs	$X,000	$X,000	**Same installation cost**
Maintenance Over 30 Years	$X,000,000+	$0	**Zero maintenance costs — no additional downtime, no servicing**
Calibration Over 30 Years	$X,000,000+	$0	**No calibration required — saves time, cost, and avoids operational disruption**
Failure & Replacement Risk	$X0,000+	$X0,000	**Minimal risk**
Total Lifetime Cost (30 Years)	$X,000,000+	$X,000	**Savings of $X,000,000+**

Beyond The Snapshot

Thermography provides valuable insights for a single moment in time.
However, electrical systems can develop issues any day of the year.
CTM gives you always 'ON' awareness of system health.

Discover more about CTM

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