

FACTSHEET

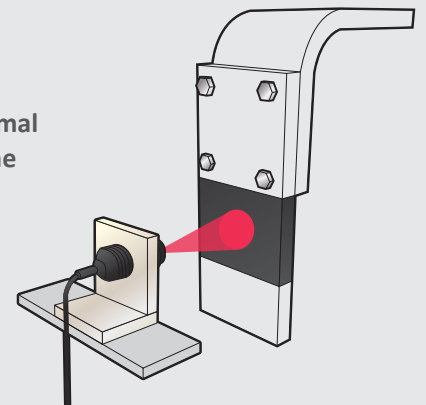
24x7 Continuous Thermal Monitoring of Critical Electrical Connections: Hotspot Detection

Q What does Continuous IR Thermal Monitoring do?

A A real-time, continuous thermal monitoring system provides a solution for the detection of hotspots at critical busbar, cable, shipping and circuit breaker connections.

Exertherm™ is the next proven technology step onward from periodic thermal imaging inspections and is accepted as the new 'best practice', providing the following key advantages:

- Monitors 100% of time instead of 'snapshot' 1 day per year
- Direct line of sight via internally installed non-contact IR sensors
- Integrated real-time data
- Does not put operators at risk



Q What are the benefits of a continuous system over periodic?

A The table below illustrates the benefits of a permanent system.

	Periodic Thermal Imaging/Windows	Permanent Exertherm™ IR Sensor System
Inspection Frequency	Typically 1 day out of 365 = <1% of time	24x7/365 = 100% of time
% Chance of Problem Detection	0.27%	100%
Positioning	External	Internal
View	Limited	Unlimited - direct line of sight
Reliability	Dependent on luck/correlation	Continuous reliable data
Availability	Data is not integrated or real time	Real-time data - integrated to BMS/EMS/SCADA
Safety	Places operator at risk	Increases facility/operator safety
Self-diagnostics	Operator dependent	Automatic

Q What value does Continuous Thermal Monitoring provide?

A Exertherm™ Thermal Monitoring provides:

- Increased Operator & Facility Safety
- Reduced need for intervention maintenance
- Increased Operational Uptime
- Reduced risk of fire / explosion resulting from Arc Flash
- Real-time data = improved critical asset integrity
- Enhanced protection for critical circuits operating at low load
- OEM Vendor Neutral
- Suitable for retrofit or new-build

RISK



NO RISK



Q How does the IR sensor system work?

A compromised joint can only be identified by the excess heat it generates. It is essential that 'excess heat' is not confused with 'heat rise' that is due to increased load or external environmental conditions. Consequently, the Exertherm™ IR sensors measure the Delta T ΔT (target temperature rise over ambient).

Exertherm™ comprises of small, plastic, Infrared, non-contact, non-powered sensors that are permanently installed INSIDE electrical equipment to directly view and continuously monitor the thermal condition of critical joints in energised electrical equipment. This enables permanent, non-invasive detection of hotspots at an early stage of development; thus avoiding potential downtime resulting from Arc Flash / power outage incidents.

Exertherm™ Continuous Thermal Monitoring provides a comprehensive and complete system solution:

- Infrared / cable sensors directly monitor critical connections
- Sensors connect to 8 channel data acquisition cards
- Automatic self-diagnostics
- Data is transmitted over Modbus network to front end software (local or remote view)
- User definable common alarms can also be sent to separate BMS/EMS/SCADA

Q Where to permanently monitor?

A The Exertherm™ solution is suitable for either LV or MV applications, enabling the following critical and key connections (including insulated bus) to be monitored simultaneously and in real-time:

- All AIS circuit breakers – line / load side
- Bus couplers – line / load side
- Critical vertical to horizontal bus connections
- Critical cable connections - typically above 400A (via specialist Exertherm™ Cable sensors)
- All shipping / transport joints Exertherm™ cable sensors)
- MCC clamp connections