24x7 Thermal Monitoring

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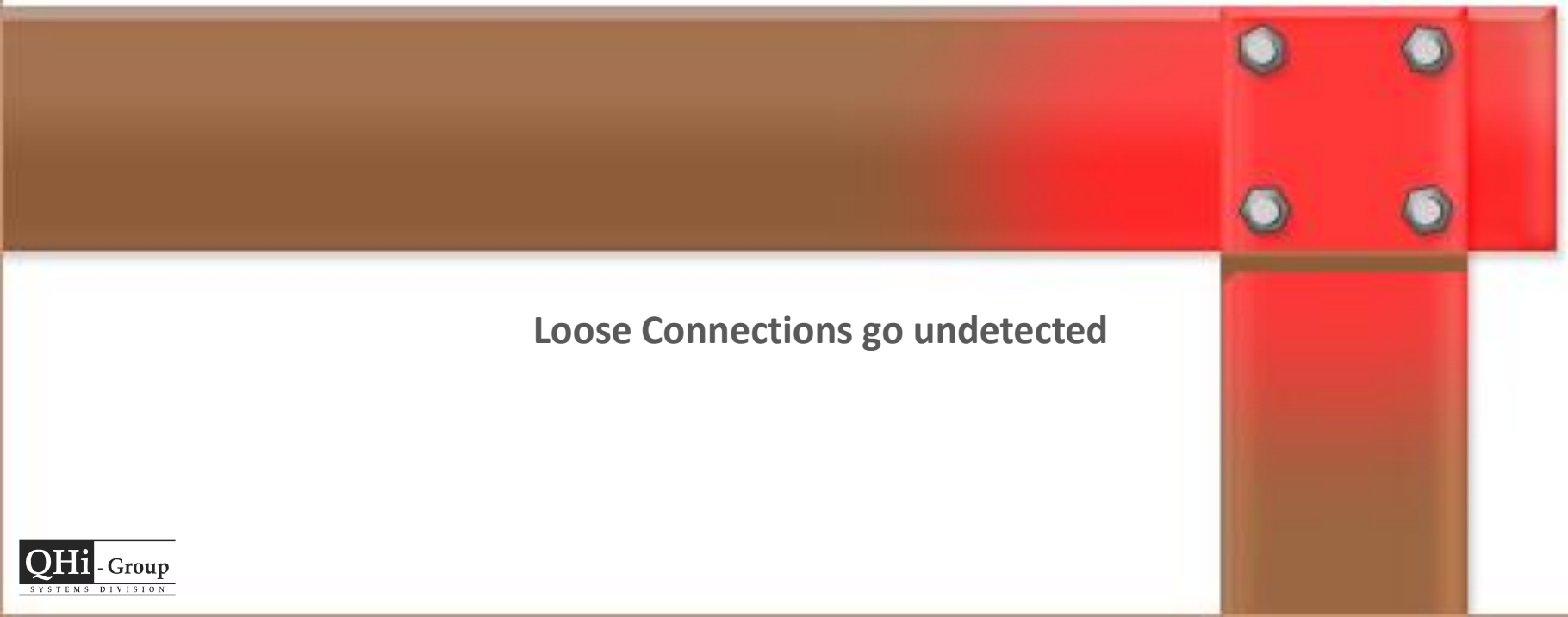
EXERTHERM™
24x7 Thermal Monitoring

The Problem:

Bad joints and connections are the most common cause of failure in electrical equipment yet they can not be detected by conventional metering or load measurement

Bad Joints



Loose Connections go undetected

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Issues with current technology...

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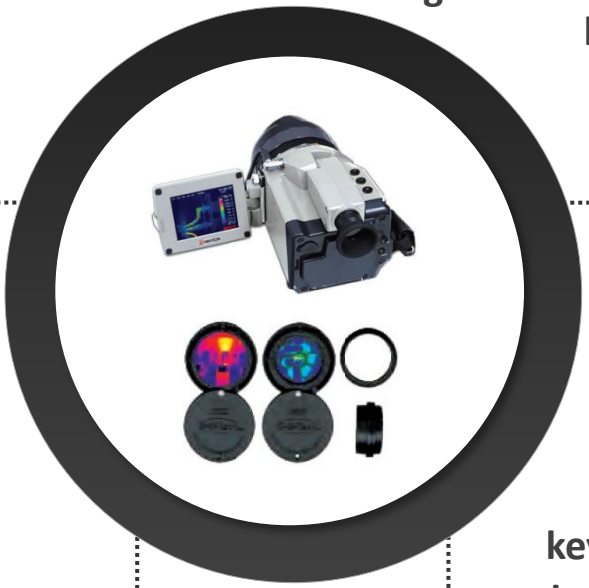
Inspection Frequency

Annual periodic thermal imaging can only inspect <1% of available time, leaving a huge reliance on luck

Poor Integration

IR inspection reports are periodic, not 'real time' data and therefore cannot be directly integrated to BMS/EMS & cannot be viewed remotely.



External Inspection

Problem is on the joints which are inside the enclosure, inspection is conducted on outside – temperature has to be correlated.

Cost Implications

Thermal Windows: they improve the view from camera to target, but don't resolve some key issues; how to inspect targets with no direct line of sight, inspections remain periodic, and also add significant cost.

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Continuous 24x7 Thermal Monitoring:

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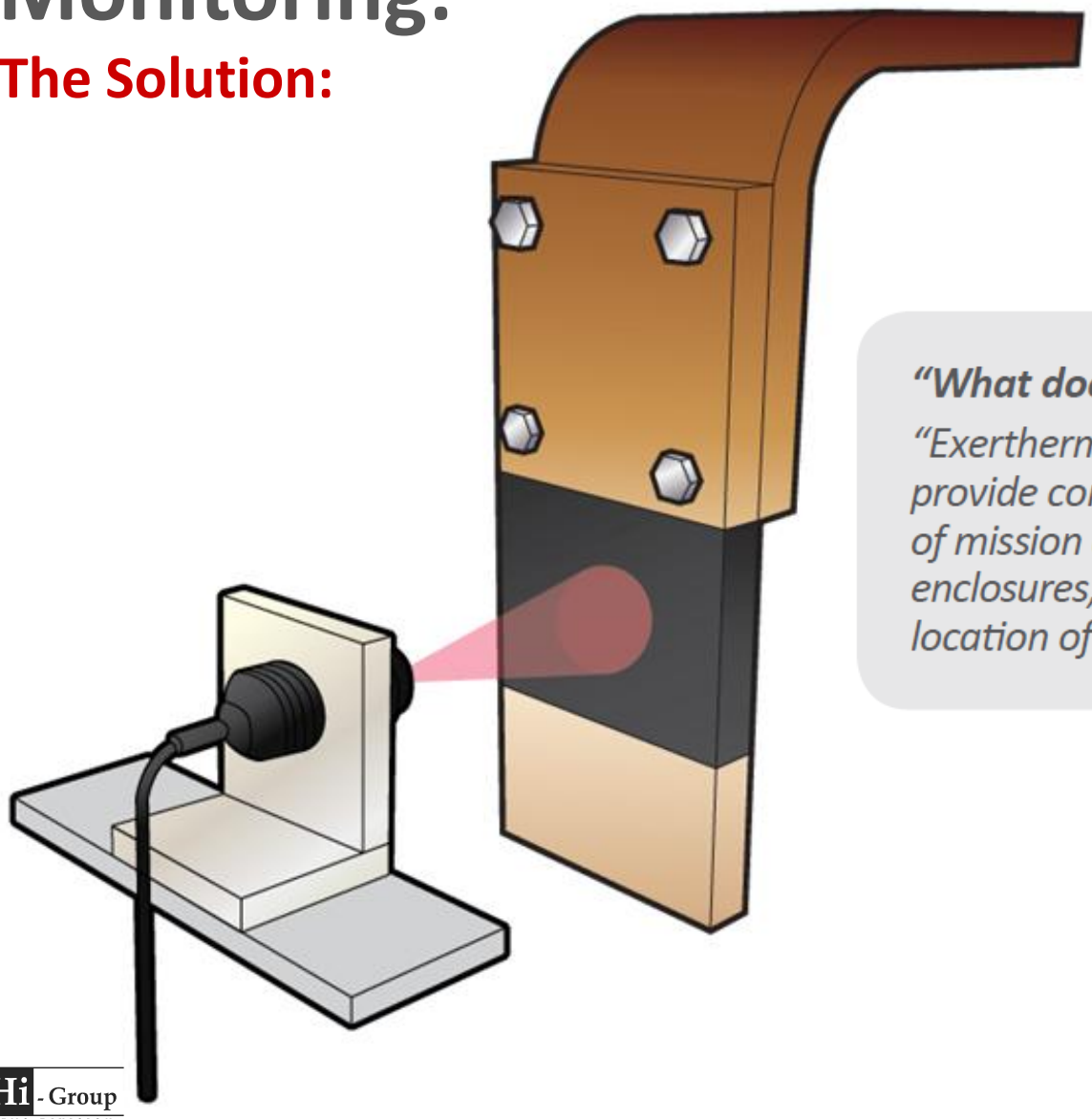
The Solution:



"What does Exertherm do?"

"Exertherm is a system specifically designed to provide continuous 24x7 thermal monitoring of mission critical electrical equipment within enclosures, and to detect and identify the exact location of the problem long BEFORE the failure."

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Importance of 24x7 Thermal Monitoring…

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INCREASED DEVICE RELIABILITY & LIFE EXPECTANCY

20%

Due to increase in accurate data, better maintenance & reduced downtime

EXTEND CONVENTIONAL INTERVENTION MAINTENANCE

2-3yrs

Thus achieving downtime savings – thermal monitoring self financing in short time frame

IMPROVED OPERATOR / FACILITY SAFETY CONDITIONS

Arc Flash

24x7 IR Thermal Monitoring inside the panel – reduce risk of opening live panel

INTEGRATED REAL-TIME DATA 24x7 365

24x7

Thermal Imaging = <1% of available time . Exertherm 24x7 integrated to BMS/SCADA

Exertherm IRt/c.EM Sensor:

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SENSORS ARE PATENTED AND REQUIRE NO EXTERNAL POWER

Exertherm IRt/c.EM Sensor:

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IR SENSOR HAS NON-CONDUCTIVE PLASTIC BODY – SUITABLE FOR ELECTRICAL ENVIRONMENTS

Exertherm IRt/c.EM Sensor:

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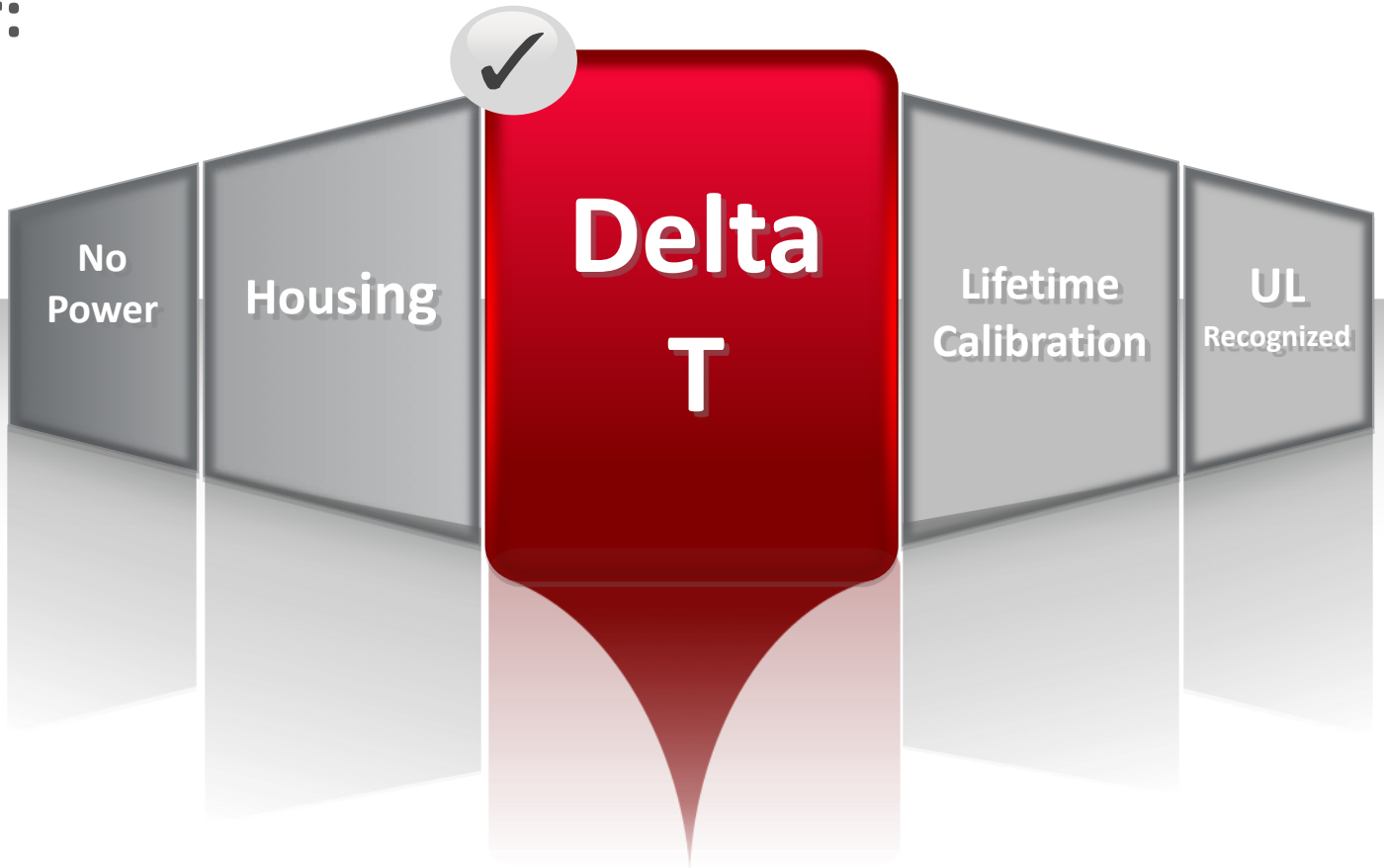

SENSORS PROVIDE RISE OVER AMBIENT (DETLA T) READING

Exertherm IRt/c.EM Sensor:

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Due to their lifetime calibration, sensors can be permanently installed INSIDE electrical panels

Exertherm IRt/c.EM Sensor:

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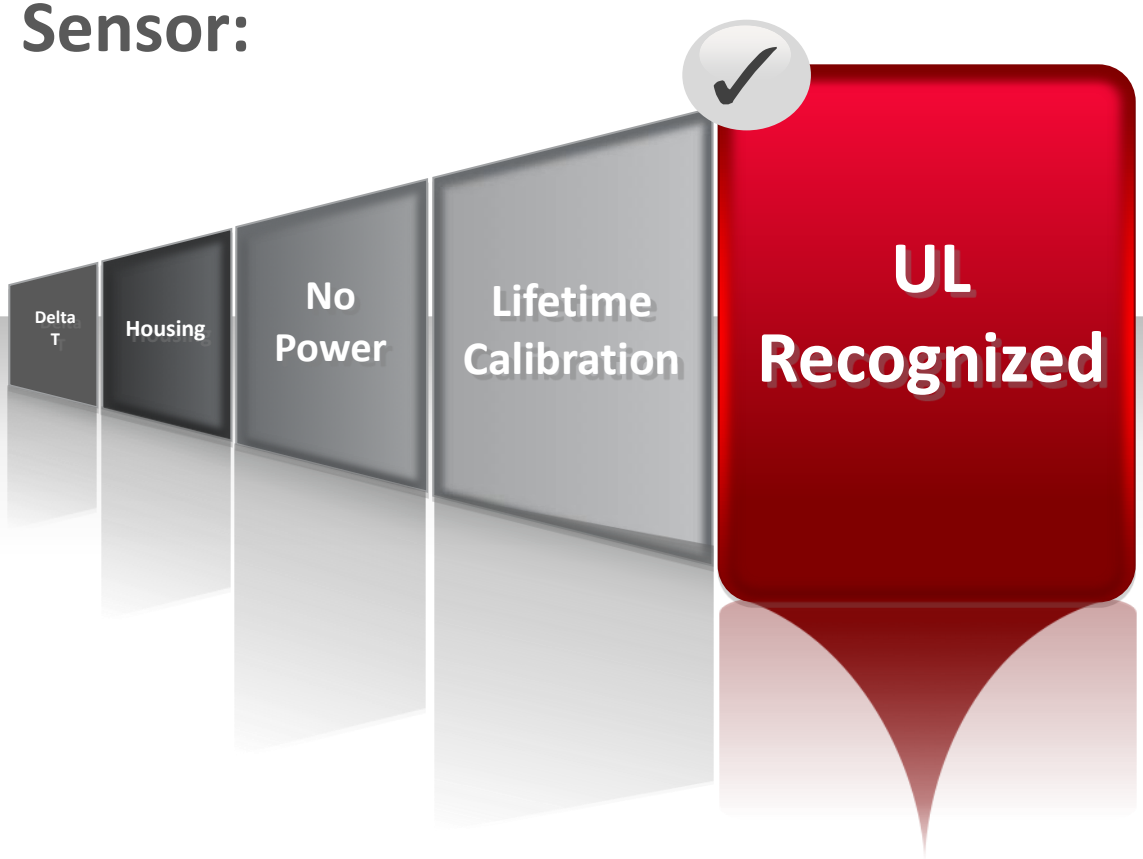

UL (USA/Canada) Recognized & CE Certified

Why is non-contact important...?

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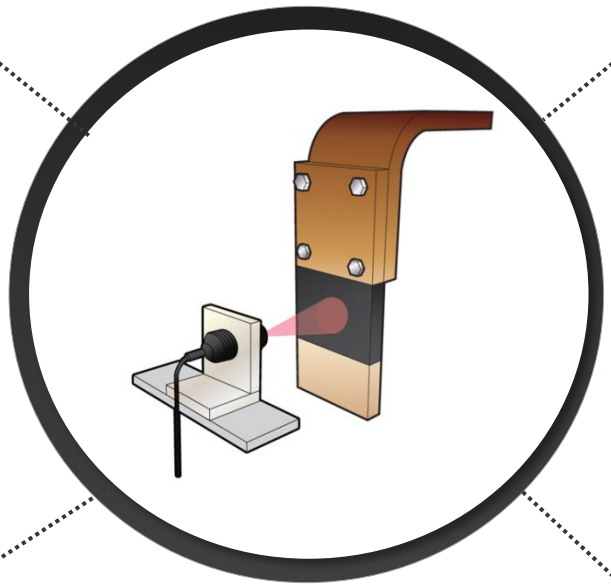
No risk of conducted energy problems

Does not compromize integrity of power system



Does not compromize integrity of system design

No clamping, drilling etc of busbar

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Features & Benefits:

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24x7 Thermal Monitoring - Features & Benefits...

IR sensors installed INSIDE the panel mean a closer and continuous look at joints – identifying the fault BEFORE the event.

Data is real-time and can be viewed locally and / or remotely, single or multi-site.

Sensors connect back to data cards which utilise ModBus protocol, meaning data can be integrated into any BMS/SCADA.

Alarms trigger in the event the temperature of any monitored component exceeds the pre-set (user definable) limits.

Real-time / historical data allows for ongoing trend analysis to detect & indentify the location of problems at an early stage.

Eliminates risk associated with opening panels and reduced risk of arc flash – increasing operator / facility safety.

Sensors are non-powered and can be placed INSIDE the panel due to their lifetime calibration.

Can increase device reliability and uptime / conventional maintenance periods can be extended due to increased knowledge.

Thermal mapping is unique to Exertherm & can only be accurately achieved by combining load data + ΔT to create a bespoke thermal map.

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Vendor Neutral

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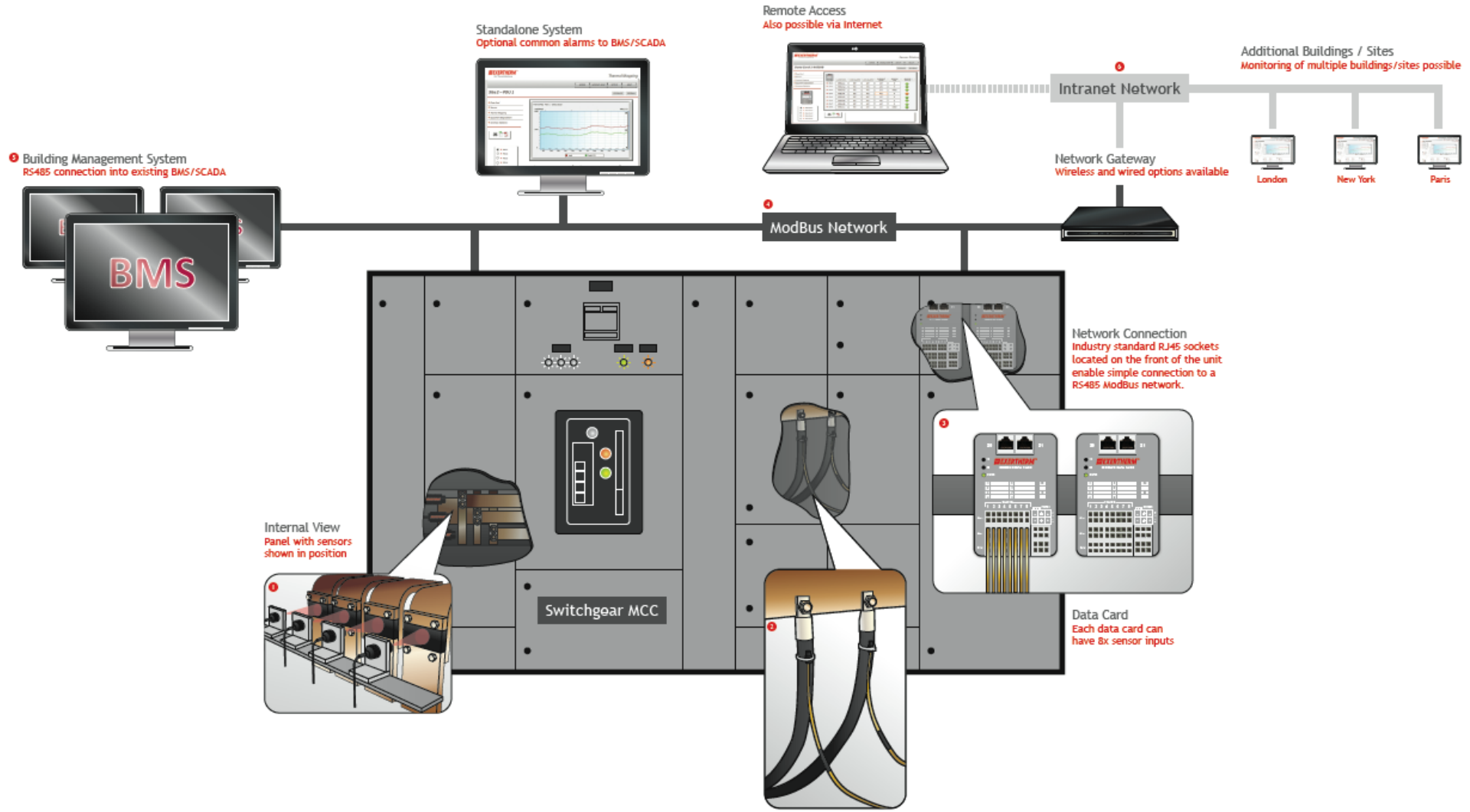
24x7 Thermal Monitoring: Integration Options



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Technology Comparison:

	Existing Technology	New Technology
		
Inspection	1 /365 = <1% available time	24x7 365 = 100%
% Chance of problem detection	0.27%	100%
Position	External	Internal
View	Limited	Unlimited
Reliability	Dependent on luck / interpretation	Continuous reliable data
Availability	Not real time / integrated to BMS	Real time / integrated to BMS – data trending etc
Cost	Increasingly expensive	Significant Price Reduction

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ARC Flash:

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STATING PPE REQUIREMENTS WILL NOT PREVENT ACCIDENTS!

ACCIDENTS ARE PREVENTED AND LIVES ARE SAVED THROUGH A FOUNDATION OF SAFETY IN YOUR FACILITIY

MAKE EXERTHERM 24 X 7 THERMAL MONITORING YOUR FACILITIES SAFETY STANDARD

CONCERNS ABOUT OPERATOR SAFETY DUE TO ARC FLASH ARE CAUSING INSPECTORS / FACILITY OWNERS TO ADOPT NEW TECHNOLOGIES IN ACCORDANCE WITH NFPA-70E & 70B

Increase Safety

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24x7 Thermal Monitoring is the missing link between **Power Reliability** and **Facility Safety**

24x7 Thermal Monitoring...

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Best Practice should be the *ONLY* practice for Mission Critical assets
24x7 Thermal Monitoring = *STANDARD* key component in protecting your system from electrical power failure

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Thank You

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