



EXERTHERM™

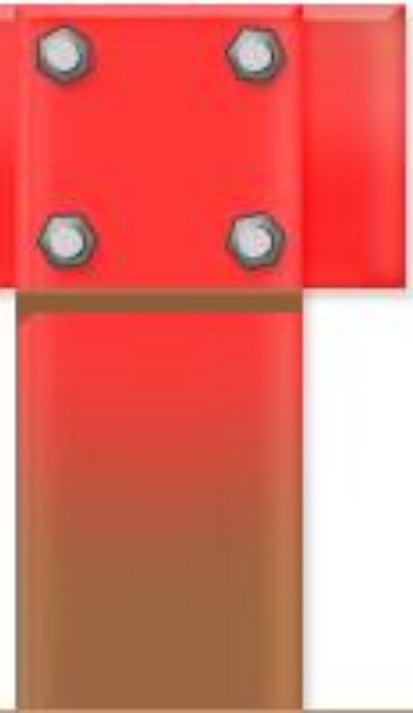
24x7 Thermal Monitoring

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



Issues with current technology...

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.



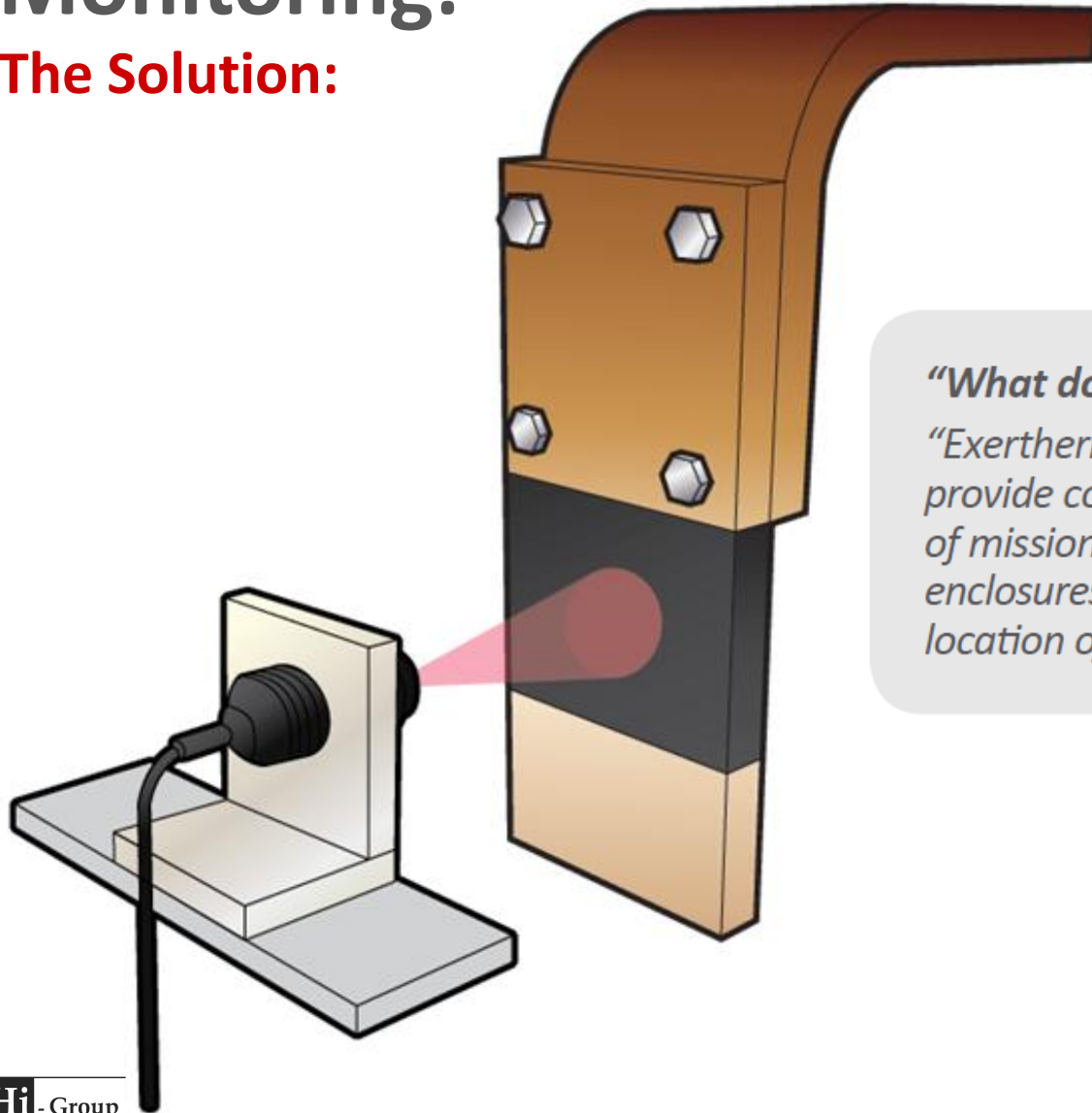
External Inspection

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.

Continuous 24x7 Thermal Monitoring: 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.”

NFPA – 70E

Standard for Electrical Workplace Safety



Control risk wherever practical:

- *Eliminate the hazard – higher level mitigation = 24x7 monitoring INSIDE the panel*
- *Reduce the risk by design – permanently install Exertherm INSIDE switchgear*

NFPA – 70B

Standard for implementing an effective Electrical Preventative Maintenance Program (EPM)

“

The purpose of an EPM is to address preventative maintenance of electrical systems and equipment used in industrial type applications with the view of reducing loss of life and property that results from failure or malfunction of electrical systems and equipment”

NFPA – 70B:

A well administered EPM will reduce accidents, saves lives and minimize costly breakdowns and unplanned shutdowns of equipment

Possible reduction in insurance costs – EPM program shows you are protecting your system / equipment via best practice technology

Effective electrical preventative maintenance begins with good design

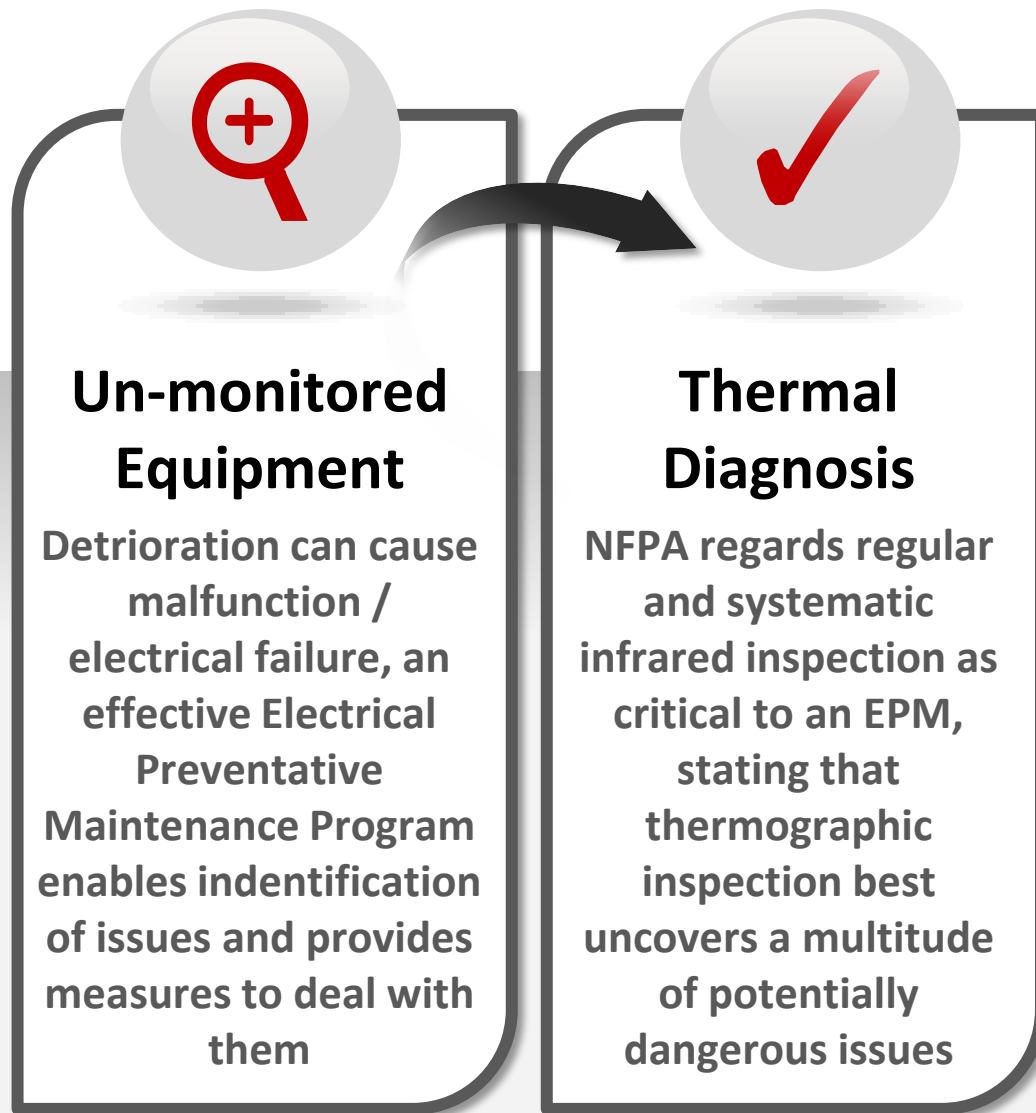
Increased uptime & profitability – through reduced interruption of operation and more efficiently planned maintenance schedules

Asset Protection – experience shows that equipments lasts longer and performs better when covered by efficient EPM (Exertherm + thermal mapping)

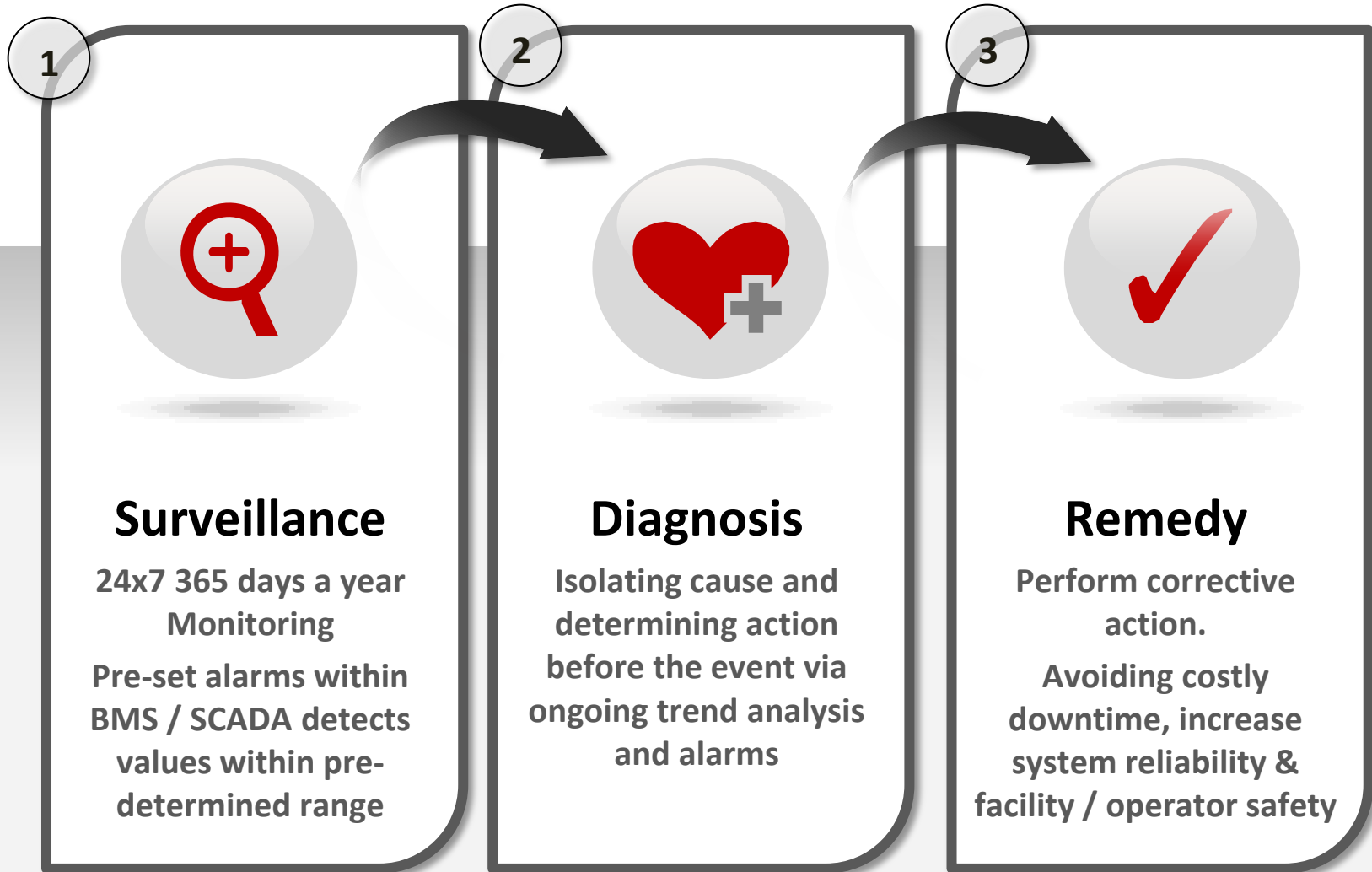
Risk management – EPM program is a form of risk mitigation and protection against accidents, lost production and loss of profit



NFPA – 70B states that....



Mission Critical Monitoring (Best Practice Model):

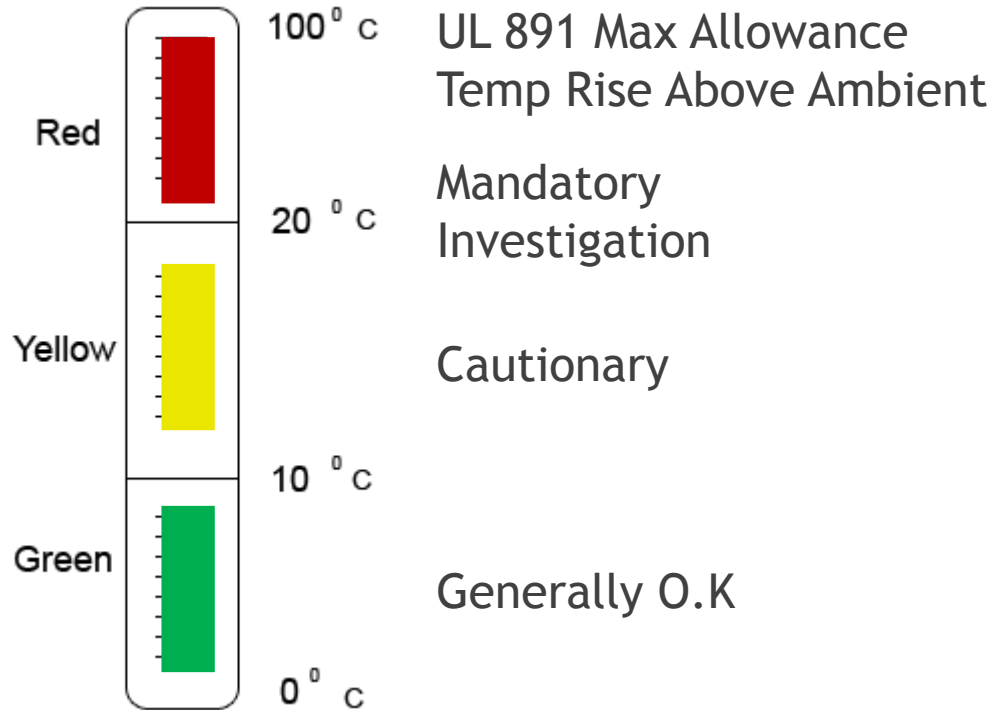


NFPA-70B also prescribes temperature benchmarking...

(comparing to system 'normal' operating conditions)

Temperature Range	Interpretation	Prescriptive Action
1°C (1.8F) to 3°C (5.4F)	Indicates possible deficiency	Warrant Investigation
4°C (7.2F) to 15°C (27F)	Indicated deficiency	Repairs should be made as time permits
16°C (28.8F) and above	Indicates major deficiency	Repairs should be made immediately

How hot is too hot...?



Scale developed about 25 years ago with Exergen Corp & Factory Mutual insurance company

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



24x7 Thermal Monitoring...

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



Best
Practice

The logo for Exertherm features a red icon of three horizontal wavy lines on the left, followed by the word "EXERTHERM" in a bold, red, italicized sans-serif font. A small "TM" trademark symbol is positioned to the upper right of the word.

EXERTHERMTM

24x7 Thermal Monitoring

Thank You