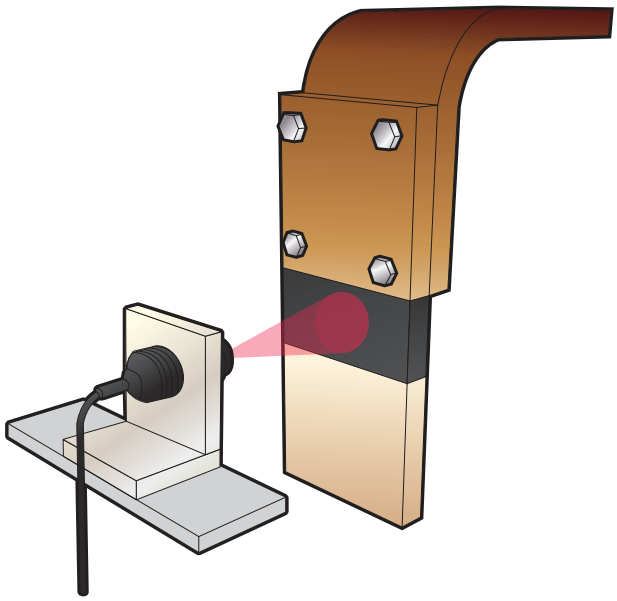
The Next Technology Step

EXERTHERM™
24x7 Thermal Monitoring

The Problem...

- The most common cause of electrical failures & Arc Flash incidents are a result of bad connections on copper / busbar joints and cable connections. These cannot be detected via metering or load measurements / power quality analysis; however, the thermal increase can be detected and measured using thermally sensitive devices such as the IRt/c. EM sensor, and for cable connections the EM Cable sensor.
- Periodic thermal imaging using infrared cameras has, over the last two decades, become the accepted “Best Practice” for mission critical facilities, however 24x7 Thermal Monitoring is now increasingly being adopted as the new “Best Practice” solution.
- Exertherm provides the next technology step by delivering 24x7 continuous Thermal Monitoring INSIDE the enclosure, detecting and indentifying the location of potential problems at an early stage of development.



Problems with current solutions...

Inspection Frequency

<1% of Available Time

Annual periodic thermal imaging can only inspect the cabinet less than 1% of the available time. To only inspect your most critical utility 1 day out of 365 leaves a huge amount to “luck”

External Inspection

Internal Problems with External Inspections

The “problem” is on the joints which are INSIDE the enclosure. The inspection is conducted on the OUTSIDE of the enclosure, and then “correlated” to what that means on the inside

Cost Implications

High Cost for Ineffective Solution

Thermal windows can be expensive & can reduce the integrity of the panel: even the best still obscures 30% IR transmission, providing only a limited view. If joints are in horizontal formation to window, it is only possible to see the front joint; this solution still does not overcome a 1 day out of 365 reliance on luck

Poor Integration

Periodic not Real-Time

The IR inspection reports are not “real-time”, cannot be integrated into the BMS or EMS & cannot be viewed remotely etc. i.e. they are not an integrated part of the management system

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.

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

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

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

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

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

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

Eliminates risk associated with opening panels and reduced risk of arc flash – increasing operator / facility safety. (NFPA - 70E)

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

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IR Thermal Monitoring – Inside the Panel...

The Exertherm IR sensor is small, non-contact, self-powered & has housing manufactured from non-conductive materials

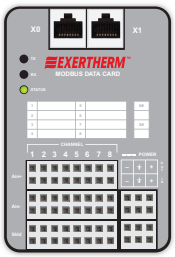
IR sensor is placed inside the enclosure to directly and continuously monitor each critical joint. This overcomes all key problems evident in current technology solutions

Exertherm IR sensors have lifetime warranty & calibration. No other IR sensor can provide this, as all other IR sensors require power

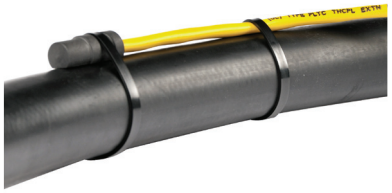
In addition, the IR sensor provides a ΔT (rise over ambient) reading. This eliminates variances in panel to panel, or site to site comparison, and is the accepted method of temperature measurement internationally

"Exertherm provides a solution which eliminates the risks associated with opening panels"

IR Sensor (IRt/c.EM™)



Exertherm Data Card



Exertherm Cable Sensor

Cable joints can be monitored using a patented cable sensor which straps to cable & delivers ΔT measurement

All sensors connect back to Exertherm Data Cards, which linearize, condition & convert signal to Modbus protocol. These are inter-connected, using standard RS485 cable to form a network. This enables simple and easy integration into any existing host BMS,EMS, or SCADA system. In the event a stand-alone system is required with just common alarm to BMS, this can be provided & is fully web enabled to provide both local & remote view via LAN / WAN.

"Exertherm provides a future proof solution for either new or retrofit installations"