EXERTHERM™
24x7 Thermal Monitoring

24x7 Continuous Thermal Monitoring

The Next Technology Step

- **Increased uptime & reliability / reduced risk of downtime**
- **Increased operator and facility safety**
- **24x7 real-time Remote & Local view of status / alarms**
- **Increasingly recognized as the future standard for the oil and gas industry**
- **Latest non-contact IR sensor technology monitors INSIDE panels**
- **Detect faults even at low load conditions**

Proven Technology specified in major Oil & Gas projects World-Wide

24x7 Thermal Monitoring

Exertherm continuously protects 24x7, 365 days a year to detect and identify the location of problems at an early stage of development via on-going trend analysis / alarms.

Standalone System
Optional common alarms to BMS/SCADA

Remote Access
Also possible via Internet

Additional Buildings / Sites
Monitoring of multiple buildings/sites possible

6 Intranet Network

London

New York

Paris

Network Gateway

5 Building Management System
RS485 connection into existing BMS/SCADA

BMS

4 ModBus Network

Network Connection
Industry standard RJ45 sockets located on the front of the unit enable simple connection to a RS485 ModBus network.

3

Internal View
Panel with sensors shown in position

1

Switchgear MCC

2

Data Card
Each data card can have 8x sensor inputs

Whats the problem?

In today's commercial environment the continued operation of mission critical buildings now has the objective of zero unscheduled downtime and minimal scheduled downtime.

The most common cause of electrical failure are bad connections. These cannot be detected via metering or load measurements, power quality etc. However, the thermal increase can be detected using thermally sensitive devices.

The Next Technology Step

Exertherm provides a major breakthrough by providing 24x7 CONTINUOUS Thermal Monitoring from INSIDE the enclosure, rather than periodic inspections from outside.

Exertherm provides capability for data logging / on-going trend analysis and user definable alarms. Warning and critical alarms can be configured which trigger in the event the temperature of any monitored component exceeds the pre-set limits.

Exertherm is easily installed (new/ retro) & integrates with most BMS/ SCADA systems.

Current Technology

Thermal imaging inspections are normally carried out once or twice per year (1 or 2 out of 365). Also, the inspections are done from OUTSIDE the enclosure in which the equipment is located.

Even thermal windows don't overcome the problems; they improve the view from camera to target, but don't resolve some key issues, like how to inspect targets with no direct line of sight, nor the fact that the inspections remain periodic, and also add significant cost.

How it works...

fig 1 Exertherm utilizes small plastic, non-contact IR sensors which require no external power, have lifetime calibration & deliver ΔT measurement. These are placed INSIDE the enclosure, directly monitoring key connections.

fig 2 Cable joints can be monitored using a patented cable sensor which straps to the cable & delivers ΔT measurement.

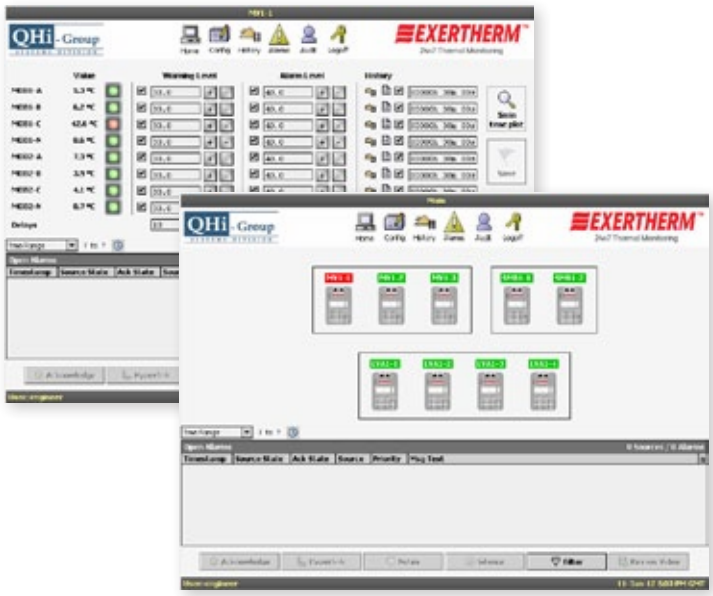
fig 3 These connect to data cards (8 per card), which collect condition & transmit the data to the host system.

4 Data cards utilize industry standard ModBus protocol for easy integration.

fig 5 Delivering the data to an existing BMS system is a straight forward process.

fig 6 This facilitates the thermal monitoring of all critical equipment, not just in one building, but for any location via WAN Intranet/Wireless etc.

Exertherm™ 'Out of the Box' Supervisory Software Solution:



Exertherm™ Software Solutions:

1 Exertherm™ provides capability for user-definable warning and critical alarms, which are configured in the software and trigger in the event the temperature of any monitored component exceeds the pre-set limits.

Software screens allow the user to easily view all, and individual, sensor / data card readings and alarm statuses.

2 Exertherm Vision™ software is fully user configurable with no unique software requirements other than standard Web Browser access. Unlike direct integration into a BMS / SCADA, which provides limited functionality, Exertherm Vision™ enables the user to create a fully working and scalable 'front end GUI' within minutes.

3 The Exertherm Vision™ 'Out of the Box' solution has the following features/benefits as standard:

- User configurable with standard Web Browser
- Ability to connect up to 54 separate data acquisition devices (432 sensors)
- Four levels of user security
- Three alarm escalation levels & alarm transmission via Email (connection to client network required)
- Optional contact alarm to BMS / SCADA
- Ability to view alarm database for time-stamped events and alarms
- History trending & storage per sensor with user configurable time interval
- Can connect to panel mounted HMI
- Access via local connection to laptop or via Intranet
- Suitable for retrofit or factory option

Exertherm Enterprise™

4 Exertherm Enterprise™ has all the features & benefits of Exertherm Vision™ as a standard but also provides the user with the ability to have a single, or holistic overview of the whole facility / installation. The system operates either on a standalone PC or server (dependent on facility / project size) & communicates over standard Ethernet network backbone via TCP/IP protocols.

- Ability to create customized views and graphics
- Possible connection to in excess of 100,000 sensing points
- Long term data storage (Enterprise™ connects to Vision™ units to gather & store all necessary data for up to 3 years)
- Unlimited number of clients able to login & view
- No on-going / recurring licence fees
- Gives the ability to have remote & secure VPN dial in to view system from anywhere in the world
- Single connection point for remote engineering support
- Opens up Exertherm Vision™ facility wide via Intranet / Network use

Clients can begin with Vision™ and then expand to the Enterprise™ solution to extend the capabilities & storage capacity (should your monitoring / facility needs develop) with the ability to archive previous years of valuable data.