

uptime

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Discover

The New P-F Curve

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Infrared Imaging**

**Putting The Precision
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Provides Automatic
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Thermal monitoring has been dominated by infrared thermography for many years. Now there is a new alternative that provides continuous monitoring.

ExerTherm

Constant thermal monitoring. Just think about that phrase for a minute. A constant stream of data giving you the temperature status of your equipment. That's pretty powerful stuff. That's information that can lead to more informed decisions about your equipment's health. That is what ExerTherm provides. We caught up with Bob Kern, the product manager for Exertherm in the U.S., and a 25-year veteran of the power conversion and control equipment industry. Here is what Bob had to say about ExerTherm - a product that's been around a while in the UK, but one which is very new to the United States.



Why don't you briefly explain what ExerTherm actually is and what it does?



ExerTherm is a constant thermal monitoring system that uses an assortment of thermocouples that are permanently installed. What makes ExerTherm unique is our miniature passive Infrared (IR) thermocouple (requiring no external power) for non-contact measurement of a target. The IR thermocouple reports the temperature rise above ambient, eliminating the ambient temperature fluctuations in the data as a variable. The system not only monitors and alarms, but also collects and stores data for trend analysis for true predictive maintenance. The system can be used for electrical switchgear and distribution equipment, motors, pumps, bearings and so on.

When did you develop the idea for this product?

Power Service Concepts is the authorized USA distributor and Service Company for ExerTherm. QHi Group in the UK developed ExerTherm about 6 years ago.

How long has ExerTherm been used successfully by industry?

ExerTherm was rolled out in the UK about 5 years ago. With success of over 20,000 sensors and associated ExerTherm equipment installed in the UK, QHi decided it was time to introduce ExerTherm to the US.

What industries is ExerTherm best suited for?

Data Centers, Financial, Telecom, Utilities, Shipping, Media, Petro-Chemical, Large Scale Manufacturing Plants. Really any facility or organization where failure of mission critical equipment will potentially result in significant down time costs.

What type of machinery is ExerTherm being used on currently?

Key joints / connections (the most common cause of failure) in critical electrical enclosures (switchgear, transfer switches, PDUs, UPSs, transformers). In addition, critical mechanical equipment such as HVAC, bearings, gearboxes, motors, pumps, etc.

Is ExerTherm appropriate for any size operation?

Yes. ExerTherm is completely scaleable. A facility can start with an affordable single data card system with up to 8 sensors today, and incre-

mentally install more monitoring as needed by purchasing additional data cards and sensors. Large-scale OEM and “Green Field” (new construction) installations are common, as well as retrofits. The basic ExerTherm System will operate on a PC. ExerTherm can be integrated many different ways in up to 450 different Business Management Systems as well.

What kind of impact does ExerTherm have on overall plant and machinery reliability?

ExerTherm has two functions, the 1st being predictive maintenance. The software has built in trending and graphing functions so the technician or engineer can review the data and make decisions based on the data that has been collected. From there they can decide how well their equipment is performing and look for problems during a “growth period” or un-usually heavy production period. Are parts starting to fall short of their ratings or expected life? Can components or the system handle the expected growth? Answers only the collected trend data can answer.

The 2nd function is the alarms. The responsible engineer can turn on the alarm function for each channel independently and set the “warning alarm level” and the “maximum alarm level”. So in real time ExerTherm will initiate an alarm when one of the levels is tripped on any of the channels. The basic ExerTherm system includes an alarm card with SCADA compatible dry contacts.

Can a business case be made to justify the cost of ExerTherm?

Yes, the trend data collected and stored on the PC, will allow the owner to optimize the time between scheduled preventive maintenance sessions. Preventive maintenance is scheduled on a calendar time or hours of operation. Of course the time interval is based on what the responsible engineer believes will provide the most operating time between scheduled down times for the maintenance work without incurring failures. If the cycle time is too short, there is a waste of time and money. If it's too long and a failure may occur in which the repair cost, collateral damage, and the cost of the unexpected down time will be more than the cost of an ExerTherm System. In the case of electrical switchgear, many companies open the cabinets and perform the

torque maintenance once a year, just in case. But if the bus bars are monitored 24/7/365, the data can be reviewed and if no increase in temperature is seen, that maintenance cycle can be extended. So, instead of once a year maybe the torque cycle is once every 3 years or 5 years or as indicated by the data from the ExerTherm System after review.



Photos of Installed ExerTherm Systems

Based on the nature of calendar or operational time based preventive maintenance cycles, unforeseen problems can become failures. The damage

caused by a failure will be more expensive and more time consuming to fix compared to an initial repair of a minor problem which would be inexpensive and quick to facilitate – if found in time. Review of the ExerTherm 24/7/365 Trend Data and or the ExerTherm alarms can highlight a problem before it grows into an expensive failure or catastrophic event.

As electrical demands grow in Data Centers and Manufacturing Plants, their electrical switchgear and distribution components need to handle the load. As of now, most companies perform Thermography scans once a year for preventative maintenance. But as the loads

grow daily/weekly/monthly, at some point during the year between preventive maintenance intervals, some component of the system may reach a premature limit. As the electrical demand growth occurs, real time trend data can show how the electrical system is handling the growth, allowing a more precise estimate of the expected capacity life span of the electrical equipment, optimizing the original investment of the equipment in place.

All physical maintenance is intrusive to a system. There is always a chance of something happening, such as a mistake that causes failure of the equipment or puts a technician in harms way. With electrical switchgear, at the least there maybe an issue of the system not coming back online timely, at the worst a technician can be killed from an accident or arc flash.

In short ExerTherm is all about mitigating the risks of downtime of mission critical equipment in the high downtime cost environment.

What is the best success story you have heard from the implementation of ExerTherm?

It's extremely hard to describe a “success story”. ExerTherm's mission is to highlight issues when they are minor problems, before they become major problems or catastrophic in nature. Since not one system ExerTherm is installed in has reported any major problems or catastrophic events and not a single sensor or data card has failed to date. I would consider that our best success story. Also the majority of our customers that are blue chip organizations have extended the use of ExerTherm following the initial installations. This probably speaks for itself.

How can our readers get more information about ExerTherm?

To get more info, please visit our ExerTherm Web site at www.psc-exertherm.com or, feel free to contact the USA Product Manager directly at 631-736-0593 or bkern@psc-exertherm.com and for the UK contact QHi Group Ltd: 44 (0)1582 461123 or sales@qhigroup.com