

Think Thermally[®]

Practical news for practicing thermographers

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Thermal Solutions[®] Expands with New Track and Technology for 2008 Conference

Thermal Solutions[®], an independent conference dedicated to professional thermographers and reliability leaders returns to Sarasota, Florida, January 21-24, 2008 with a new technology track for motor circuit analysis technicians. This highly anticipated annual event began in 2000 and traditionally brings together close to 300 professionals from dozens of industries with a wide range of technology applications. Participants share a common goal to make the most of training opportunities which enhance individual knowledge and skills and provide a high return on investment to corporate sponsored teams and programs.

Thermal Solutions now features three comprehensive tracks of paper presentations, new and additional short course titles, a larger and all-inclusive Exhibit Hall, "Ask the Expert" consultation sessions, new case study analysis forums and countless networking opportunities.

The three main paper tracks, Infrared for Condition Monitoring, Building Thermography and, new for 2008, Motor Circuit Analysis, provide attendees with a diverse choice of presentations from which they can learn and discover the 'best practices' of their peers in a particular field. The popular conference short courses available on Monday, January 21 will also reflect this change, offering topics that relate to all three focus areas.

The Exhibit Hall, open to all equipment manufacturers and featuring the major infrared camera vendors is another perennial high-



Thermal Solutions is held at the Hyatt Resort in Sarasota, Florida.

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Think Thermally® is a publication of The Snell Group, the leading provider of asset reliability and efficiency solutions using infrared thermography and motor circuit analysis.

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Pocket Some “Think Thermally®”

I may not “Think Thermally” 100% of the time, but I do often enough that it sometimes drives my family and friends crazy. Sorry, I can’t help it! We live in a thermal world that fascinates me. For instance, walking home from work on a fall afternoon, I often delight in feeling the warmth of the west-facing brick wall I walk by, or looking at patterns of snowmelt or frost or condensation on roofs —“snow audits” as my friend Jack calls them. Of course the funny thing is that all of it, in the end, so clearly relates to learning more about heat transfer and infrared.

So, as much as I pride myself in seeing the world through “infrared eyes,” I recently realized how much I was actually missing. The awareness shifted when I began carrying a small spot radiometer with me everywhere. It literally fits in my pocket and can be used unobtrusively to measure the world around me, helping quantify my observations and thinking.

The tool I happened upon had a field of view (FOV) of 1:1 (*Image 1*). Honestly, I’d always had a bias against these “toys” and the techniques they required, somehow feeling it was better to stand back with a “real” radiometer (at least 60:1) and shoot the target from a respectable distance. Having worked around electrical and mechanical equipment for much of my career, the bias is understandable and, perhaps, forgivable. But boy what I was missing!

When safety allowed, as in fact it often did, I could easily and accurately measure temperatures of my close-up world. How hot does a frying pan need to be for the perfect sunny side up? How quickly does toast cool down? Was the glass of wine the perfect temperature? I “looked at” leaves in the sun and in the shade, and at flowers of different colors. I measured how the temperatures of the front and side windows of a car compared on clear, cool, mornings (*Image 2*). With my little “toy” in hand I was learning many new things, refining old ideas and quantifying phenomena I’d only qualitatively considered in the past. If I could get close enough, I was going to measure it!



Image 1



Image 2. Overall differences in window temperature detected with a 1:1 spot radiometer above. The rear window measured 0° C (32° F) while the side window appeared slightly warmer at 1.7° C (35° F).

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Motor Circuit Analysis: The “New Kid” on the Block

We think of thermography as a relatively new technology especially when compared to vibration. But there’s an even newer kid on the block. Recently I’ve shared the correlation of the results of different reliability technologies and I’ve made reference to motor circuit analysis in some of these articles. It’s time to discuss Motor Circuit Analysis (MCA) in more detail.

MCA in its simplest form is a process of determining the health of an electric motor and its associate circuit by using specific electrical test equipment. Test equipment used might include: VOM, ammeter, Meggar, LRC bridge or an FFT monolithic rotor bar tester, to name a few. This type of MCA has been going on for nearly a century, so why did I refer to MCA as “the new kid?”

Beginning about 15 years ago sev-


eral manufacturers began to incorporate several of these individual pieces of test equipment into one or two pieces of portable, computer-supported test equipment. These portable testers can be used to accurately and quickly capture motor circuit data that can be measured, quantified, stored and analyzed to help anticipate and identify fault conditions that can lead to the premature failure or loss of an asset.

MCA equipment can also serve as a motor database, allowing a user to track motors, trend parameters, and search for specific criteria. The captured data can then be presented in several different formats for reporting the motor information. The combination of all of the above pieces of test equipment into portable test equipment was the key to enabling efficient and accurate testing of motor circuits to help increase asset reliability.

MCA can be further described as de-energized offline (static) testing and energized online (dynamic) testing. Each of these tests provides unique data that can be correlated with other technologies or each other to identify failure modes in their infancy.

Like any asset management system, managing motors takes time, effort, and diligence. MCA is but one part of Motor Asset Management. Other components should include:

- ▶ Someone in charge and accountable
- ▶ Location for proper storage
- ▶ Maintenance of stored motors
- ▶ Preferred and accountable repair facility
- ▶ Repair specification guide
- ▶ Negotiated contract with new motor vendor
- ▶ Motor reliability testing (appropriate technologies)
- ▶ Decision tree for determining repair vs. replacement
- ▶ System of tracking from purchase to scrap
- ▶ System to address motor energy consumption

Snell Inspections is working closely with their clients to implement successful motor asset management programs. 

A Snell Inspections technician using MCA during a recent inspection at a client’s facility.



IRTalk.com: A New Online Forum for Thermographers

Thermographers looking to network with colleagues, share new discoveries, ask questions or simply search for information related to infrared can now do so with ease at IRTalk.com. Launched by The Snell Group in May 2007, this new online infrared forum is dedicated to professional thermographers and the world of thermal imaging and draws on the knowledge and experience of the greater infrared community.

IRTalk.com both updates and expands one of the most popular messageboard forums from the infrared industry which was originally hosted at www.snellinfrared.com. IRTalk.com is now a stand-alone site with four individual discussion sections dedicated to a specific area of thermography: Applications, IR Classroom, Equipment Talk and Classifieds.

“Applications” is where you can ask questions or share reports on everything related to infrared inspections including work with Electrical and Mechanical Equipment, Building and Roof Systems, Moisture/Mold Inspections and Non-Destructive Evaluation of Materials. In the “IR Classroom” participants will find discussions on basic heat transfer theory, thermography standards, certification and training. Discuss the use and performance of thermal imagers, viewports and windows, Personal Protective Equipment (PPE), camera accessories, blower doors, and all other related equipment in “Equipment Talk” or consider the “Classifieds” board if you’re in the market for a used camera or if you are trying to sell an imaging system.

According to John Snell of The Snell Group, “IRTalk.com is a place where all thermographers can grow their knowledge of this remarkable technology by asking questions or sharing information with each other.” Many instructors of The Snell Group are regular contributors to the forum,



IRTalk.com™

Connecting the Infrared Community

bringing diverse experiences, applications, and ideas. Discussion threads are active and the quality of the participation demonstrates the value of this resource.

Among the many new features that registered members will find are improved message formatting options with custom fonts, text sizing, signatures and avatars; enhanced search capabilities for posts by topic, date and author; customizable e-mail notifications for all message posts and replies; and, optional RSS feeds for individual messages, entire boards or even search results.

Members can also attach to their post any number of file types including JPEG images, PDF's or Word Documents. This allows thermographers to share with other members of the forum either single infrared images or entire reports with which they have either a question or a concern. Not surprisingly, a number of IRTalk.com community members are already responding quickly and enthusiastically.

Registration for IRTalk.com is free and open to everyone allowing members to either post or respond to messages on any thread or forum. Whether you are a maintenance technician, reliability engineer, electrical contractor, building inspector, weatherization professional, infrared service provider, or just want to know more about thermography, IRTalk.com is the place to learn from those who are active in the industry or investigating the possibilities. Experience it for yourself and register today at www.irtalk.com.

“IRTalk.com is a place where all thermographers can grow their knowledge of this remarkable technology by asking questions or sharing information with each other.”

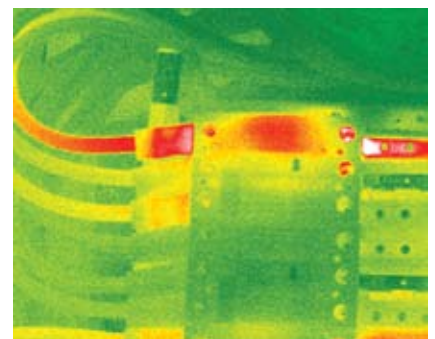




Image 2

In addition to helping thermographers troubleshoot images or locate answers to technical questions, IRTalk.com has also featured some of the more extraordinary inspection moments from the world of thermography.

The “hottest” finds were discussed in a recent thread between thermographers that included a post by Rory Paul of Barak Systems. He found this whopper, a 1,010 degree C (1,850° F) hot spot (Image 1) located on a 2,500 amp buss connection. Yes, if you look carefully, as one would expect, that is visible light being emitted in the center of Image 2 and the results of such heating in Image 3.

Just like an inspection, at IRTalk.com you never know what you might find.

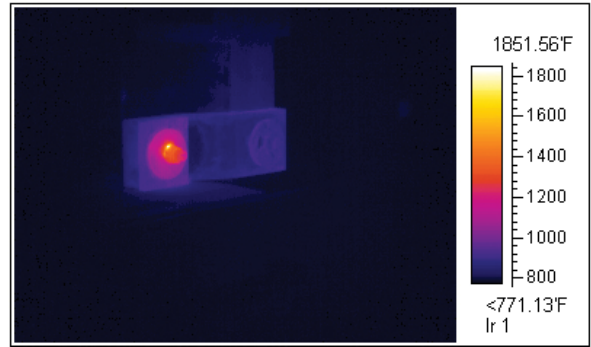


Image 1



Image 3

Pocket Some “Think Thermally”[®]

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The biggest shift in my perceptions came the day I realized the 1:1 FOV also enabled me to easily measure average temperature values! I could measure differences between blue sky and sky with a big, puffy cloud. On a summer afternoon I could see that a shade tree meant the sidewalk was 20°F cooler, and grassy areas were at least that much cooler than pavement. Inside buildings I noted the influence of the sun on a south or west wall and the effect of stratification. I realized

how useful this tool would be for measuring average reflected background temperatures—no more crinkled foil for me!

I’m enjoying my new awareness of the world immensely. My only regret is that I let my bias keep me from it for so long. People who know me just roll their eyes when they see me reaching into my pocket for my little spot radiometer. Interestingly, they have also grown to rely on my measurements. And it’s often a good way to engage in a conver-

sation with a complete stranger. “Sure is hot on this airplane,” he said. “Yes! In fact, it is 82°F” I respond.


Of course there are now also infrared cameras small enough to carry in my pocket. Life is good. ☺

Thermal Solutions® Expands with New Track and Technology for 2008 Conference

Continued from page 1

light of the conference. “For anyone looking at starting in the industry or considering new equipment, Thermal Solutions is the best place to meet all the camera manufacturers,” says John Snell of The Snell Group. “It’s also an environment that is conducive to learning without any intense sales pressure.”

The Hyatt Sarasota, a beautiful resort, marina and conference center located on the water in the heart of Florida’s west coast, will once again host Thermal Solutions. Visit <http://sarasota.hyatt.com> to discover the many amenities available including swimming, fishing, boating, biking and golf. Special lodging rates are available to conference attendees by calling 1-888-421-1442.

Thermal Solutions is presented by The Snell Group, the world’s leading provider of asset reliability and efficiency solutions using infrared technology and motor circuit analysis. The Snell Group assists organizations at all stages of their reliability program through audits, program assessments, consulting services, training, mentoring, inspections and knowledge resources. For more information on Thermal Solutions 2008, including registration options and exhibitor opportunities, please visit the conference web site at www.thermalsolutions.org or call 1-800-636-9820. 



The Thermal Solutions Exhibit Hall is the perfect place to test all of the latest IR imaging equipment.



Visit our new online messageboards now available from **The Snell Group**



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Snell Infrared - U.S.A.

LEVEL I	DATE	\$1,595 USD
Charlotte, North Carolina	September 10-14	
Manchester, New Hampshire	September 17-21	
Indianapolis, Indiana	October 15-19	
San Antonio, Texas	November 5-9	
Montpelier, Vermont	December 3-7	

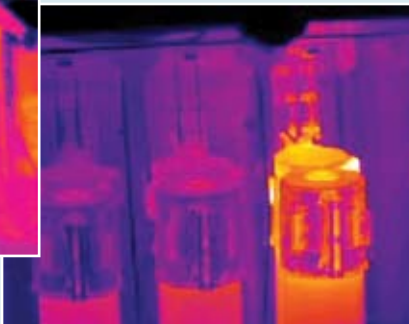
LEVEL II*	DATE	\$1,595 USD
Cincinnati, Ohio	September 10-14	
San Antonio, Texas	November 5-9	

BUILDING SYSTEMS*	DATE	\$1,095 USD
Cincinnati, Ohio	September 20-21	

ELECTRICAL APPLICATIONS*	DATE	\$1,095 USD
Cincinnati, Ohio	September 18-19	

MECHANICAL EQUIPMENT*	DATE	\$1,095 USD
Cincinnati, Ohio	September 20-21	

NON-DESTRUCTIVE EVALUATION OF MATERIALS
Available. Please Call 1-800-636-9820.



Snell Infrared International - Canada, South Africa, and United Kingdom

LEVEL I	DATE
Toronto, Ontario	September 24-28
Toronto, Ontario	November 5-9
Johannesburg, South Africa	November 5-9
Toronto, Ontario	December 10-14

LEVEL II	DATE
Montreal, Quebec (French)	September 10-14
Bridgend, United Kingdom	October 22-26
Toronto, Ontario	November 12-16
Johannesburg, South Africa	November 12-16

LEVEL III	DATE
Toronto, Ontario	October 22-26
Johannesburg, South Africa	November 19-21

BUILDING SYSTEMS*	DATE
Montreal, Quebec (French)	November 21-22
Toronto, Ontario	December 6-7

ELECTRICAL APPLICATIONS*	DATE
Toronto, Ontario	November 29-30

MECHANICAL EQUIPMENT	DATE
Johannesburg, South Africa	November 22-23

* Level I or Introduction to Infrared training required.

**2008 Training Schedule Available
in September
www.snellinfrared.com**



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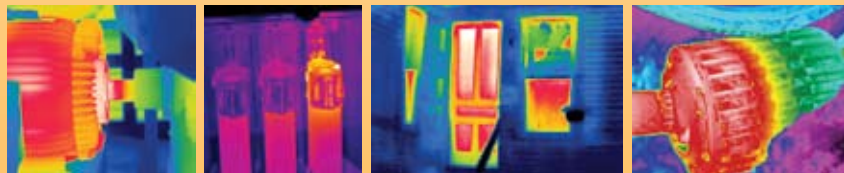
***The* conference for professional thermographers,
motor circuit analysis technicians and reliability leaders.**

“Thermal Solutions is the ‘best of the best’! Everyone is valued
whether you’re an exhibitor, attendee or presenter.”

– Larry Welch, Ford Motor Company

“This conference enables me to remain current
on best practices and learn from the experiences of others.”

– Abayomi Carmichael, Bermuda Electric Light Co. Ltd.



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