

Volume 9 Issue 2 - February 2020

## Director's Message



Despite the important role they play, electric motors tend to be both out-of-sight and out-of-mind until they fail. In most facilities, infrared thermography can be used as a cost-effective diagnostic tool for detecting problems within installed electric motors.

Many infrared inspection programs include motor control circuits but overlook the motor itself. Evidence of several conditions which can lead to premature motor failure can be detected with a thermal imager. The following are suggestions for thermographically inspecting motors.

- With cover removed, inspect electrical connections at the motor junction box. This should be done in conjunction with the regularly scheduled inspection of the facility's electrical system.
- Inspect motor casing for localized hotspots which may be indicative of short circuits within motor windings
- Qualitatively compare individual motors to similar motors under similar load
- When possible, qualitatively compare inboard and outboard bearings for each motor. If a large Delta T is present, it may be indicative of misalignment or a rotor balance problem. If both bearings are hot, the bearings may be worn or improperly lubricated.

Because no complicated analysis is required, infrared inspections typically can be performed rapidly and at a fraction of the cost of other types of motor testing. Additionally, infrared can detect evidence of misalignment at lower thresholds than those detectable by vibration analysis and motor current signature analysis.

## IR/INFO 2020 - An Event to Remember!

Infraspection Institute's IR/INFO Conference was recently held in San Antonio, TX. 2020 marks the 31st anniversary for the advanced training conference, technical symposium and technology expo.



IR/INFO was attended by infrared thermographers, PdM and CBM technologists, and building inspection professionals from around the world who enjoyed four days of networking, learning, and fun in a relaxed and professional atmosphere.

We thank our exhibitors, our speakers, and all who attended and helped celebrate the 31st anniversary of our IR/INFO conference.

Plans for Infraspection's next IR/INFO event have already begun. IR/INFO 2021 will be held at the Rosen Plaza in Orlando, FL from January 17 - 20, 2021. We look forward to seeing you there!.

[More Information](#)

## SuccessIRies™ 105: NFPA 70E - Are You in Compliance?

Following the publication of the 2018 edition of NFPA 70E, Infraspection Institute have updated our SuccessIRies™ 105 online short course, *NFPA 70E – Are You in Compliance?*

## Upcoming Courses

### [Level I Certified Infrared Thermographer®](#)

- Feb 3 - 7 Las Vegas
- Feb 3 - 7 Kuala Lumpur
- Feb 10 - 14 West Windsor
- Feb 24 - 28 Palm Springs
- Mar 2 - 6 San Jose
- Mar 9 - 13 Athens
- Mar 9 - 13 Las Vegas
- Mar 16 - 20 Brisbane
- Mar 23 - 27 Melbourne
- Mar 23 - 27 Santa Fe
- Apr 13 - 17 Kuala Lumpur
- Apr 16 - 17 Kuala Lumpur \*
- Apr 20 - 24 West Windsor
- Apr 20 - 24 Las Vegas
- May 4 - 8 Auckland
- May 11 - 15 Twin Falls
- May 18 - 22 Perth

### [Level II Certified Infrared Thermographer®](#)

- Feb 24 - 28 Perth
- Mar 9 - 13 West Windsor
- Mar 30 - Apr 3 Kuala Lumpur

### [Level III Certified Infrared Thermographer®](#)

- Mar 16 - 18 West Windsor
- Jun 10 - 12 Melbourne

\* Flexible Learning Course

[Full 2020 Schedule](#)

## Upcoming Conferences

Infraspection Institute invite you to see us at the following upcoming conferences. Be sure to stop by and say Hello!

### [UE World](#)

May 12 - 14, 2020  
Clearwater Beach, FL

### [Thermal Imaging Conference](#)



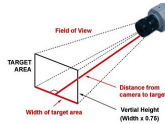
SuccessIRies™ 105 is for all thermographers who perform infrared inspections of energized electrical equipment. This course is designed for in-house and contract thermographers as well as managers of infrared inspection programs. The new version of SuccessIRies™ 105 is a must-see for all thermographers seeking to comply with the latest edition of NFPA 70E.

SuccessIRies™ 105 is designed for beginners and experienced thermographers. The course is 49 minutes long and may be accessed 24/7 from a standard web browser or a smart device.

[More Information](#)

## Calculating Imager Field of View

Have you ever wondered what the size of your imager's field of view is at a given distance? If you know the visual field of view specifications for a thermal imager, it is possible to calculate the size of your imager's viewing area for any given distance using a scientific calculator. The formula for this calculation is:



$$\{(\tan 1/2 \text{ viewing angle}) \times \text{distance}\} \times 2$$

To apply the above formula, follow these steps:

1. Determine your imager's Field of View (in degrees) from the manufacturer's specs.
2. Divide the value from Step 1 by 2
3. Determine tangent of number obtained in Step 2
4. Multiply number in Step 3 by distance from imager lens to object.
5. Multiply number obtained in Step 4 by 2. This will be the width of the imager's field of view at the specified distance.

Example: Calculate field of view for 16° lens at 25'.

$$\begin{aligned} (\tan 8^\circ \times 25') \times 2 &= \\ (0.140541 \times 25') \times 2 &= \\ (3.513525') \times 2 &= \sim 7.0' \end{aligned}$$

If your imager specifies different Field of View values for horizontal and vertical, it will be necessary to calculate each value separately. Calculated values should be used for estimation purposes as actual values may vary slightly.

[More Information](#)

## Be Unimpeachable



[Become an Infrasppection Institute Master Thermographer®](#)



September 14 - 17, 2020  
South Lake Tahoe, NV

[SMRP Conference](#)

October 19 - 22, 2020  
Columbus, OH

[IR/INFO Conference](#)

January 17 - 20, 2021  
Orlando, FL

## Links of Interest

[IRINFO.ORG](#)

[CITA.ORG](#)

[The RAM Review](#)

[TI-Reporter.com](#)