

Switchboard Thermal Surveys ... A Guide for Contractors

Electrical contractors are finding that they can grow their business by offering new services like switchboard thermal surveys to clients.

As the price of thermal imaging cameras drops to a level where the equipment cost is comparable to the cost of other electrical test equipment, electrical contractors are finding that they can grow their business.

Switchboard thermal surveys are required when carrying out routine inspection and testing of electrical installations under AS/NZS3000:2007 Wiring Rules. Meanwhile, more and more business owners are required to provide thermal switchboard survey reports to insurance companies as part of their commercial premises fire risk assessment. Switchboard thermal survey reports have become a valuable business document that can lower insurance premiums and help businesses save money.

New Zealand's switchboard thermal survey business is growing and is no longer the exclusive domain of thermography consultants. Today, switchboard surveys are a routine inspection carried out by electrical contractors armed with a modestly priced piece of test equipment and an hour or two of user training under their belt.

Switchboard Inspections & The Wiring Rules

The testing, measurement, and result recording procedures for switchboard thermal surveys are described in the testing and inspection provisions of AS/NZS3000:2007 Wiring Rules through their alignment with AS/NZS3019:2007 Electrical installations, Periodic verification.

Under Section 5, Verification by visual inspection and full testing of an electrical installation, clause 5.8 "Integrity of switchboard connections" states: "With normal operating loads being supplied for at least 30 minutes, the temperature of switchboard components shall be measured and compared to the ambient temperature to ensure that there is no excessive rise in temperature. NOTE: This test should be carried out with a thermal imaging device; however, use of an infrared thermometer is acceptable. For each switchboard, both the ambient temperature and the maximum temperature measured should be recorded and any items whose temperature is significantly above the ambient noted."

Switchboard thermal surveys are a routine visual inspection under AS/NZS3019 and are carried out by a licensed electrician. The AS/NZS3000 Wiring Rules do not require operators to have any other specialized qualifications or employ the services of specialist consultants.

An Open Door for Electrical Contractors

Regulations, Standards and Codes of Practice in New Zealand specify that any work on an electrical installation (defined as any fixed appliances, wires, fittings, apparatus or

other electrical equipment used for conveyance, control and use of electricity in a particular place) must be carried out by a licensed electrical contractor.

Thermography consultants carrying out switchboard thermal surveys must be accompanied by a licensed electrical contractor because only licensed electrical contractors are competent to open the switchboard cover on a live electrical installation.

Electrical contractors have a competitive advantage over traditional thermography consultants. Electricians can provide a lower cost service to their customers because of the reduced manpower required to carry out the switchboard surveys.

The Switchboard Thermal Survey System

When evaluating thermal survey systems, users should be aware of features such as visible light image camera, voice recording, laser pointer and reporting software also make the survey system more efficient. But this functionality does not need to command a high price, with such systems starting from as little as \$9,500 ex GST.

Thermal Switchboard Survey Reports

Reports should include inspection details such as description, date and time, thermal image results summary and a fault analysis. The inclusion of a visible light image is also regarded as an essential part of the Switchboard Survey Report. It serves as evidence that the switchboard was inspected and helps to identify faulty components when carrying out remedial work.

Also important in the accountability of the survey reports is how the inspection data was collected and collated. Paper based recording of inspection notes and comments is prone to human error and should be avoided. A switchboard survey system should offer a voice recording feature. This allows the operator to speak into the thermal imaging camera and the voice notes are linked to the thermal image. When the report is generated off-site, the operator is able to listen to the recorded voice notes and transcribe them accurately into the survey report. Voice recording guarantees the accuracy and accountability of survey reports.

The Heat Seeker (61-844) by Ideal Industries (USA)

An example of a switchboard thermal survey system that meets requirements outline in this application note is the "**HeatSeeker**" Switchboard Inspection System. The system is supplied as a complete solution, covering the "**HeatSeeker**" thermal imaging camera, "**HeatSeeker**" multi-page reporting software and **Spectron NZ** user training. The system price is \$9,500 + GST giving electrical contractors an affordable solution to grow their business and expand their customer base.

IR Thermometers for switchboard applications (61-685) by Ideal Industries (USA)

Ideal Industries also provide a very handy low cost tool for simple applications not requiring visual recording or computer based reporting. With laser pointer and emissivity adjustment this tool is feature packed for only \$275.00 + GST

For more information regarding your Thermal Imaging requirements, please give us a ring and we will give you expert advice.