

Find hidden faults in electrical circuits



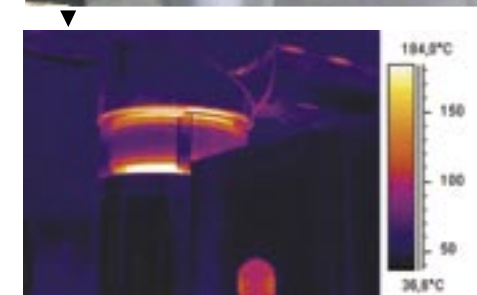
## A day in the life of a Thermographer...

**07:00** – Check my diary for next week. Need to book a car service – mileage has really stacked up since I started using my new infrared camera, a FLIR Systems 'ThermaCAM® P65'. Pick up a couple of charged batteries for today's survey. I'll take additional lenses in case I need them. Some plants have tight spaces and a 45° field of view can make all the difference. It's one of the reasons I bought this model, great choice of lenses and accessories.

**09:00** – Arrived 10 minutes ago – went through the safety brief and waiting for Maintenance Manager Jim. We discuss his requirements from the survey. One section of the plant is

due a shutdown in two weeks and is running flat out. Jim wants to see if anything else needs attention while the plant is off-line.

**11.30** – Jim has left me to get on with the survey and for the electrical switchgear I am supported by one of the site electricians. So far we have done all the low voltage equipment panels – and the 45° lens came in very handy. Not much to worry about although I have a couple of images to review later. I have taken visual images as well – the high-power lamp was very helpful – and made voice-recorded notes; no more need for a notepad or clipboard.



Find problems fast



**12:15** – I have just asked Jim to look at the main finished goods conveyor taking the packaged product out to the bulk packing machines. Although not part of the original survey the scan shows a significant problem on the track above. One of the bearings has seized - the roller is rubbing, a long streak of wear is shown as a heat signature on the belt and the roller is very hot. To show the location I use the camera's built-in laser pointer. We discuss the problem and Jim asks for a copy of the image so he can discuss it immediately with the production manager. I save the image on a memory card for him – as they are in a standard jpeg format he will be able to email it straight over and they can discuss the significance immediately. I carry on with my survey.

**13:30** – Survey completed – now for a quick review. We use thumbnails on the 4inch LCD. We look at several items, in particular the roller and also a couple of electrical connections that will need attention shortly and what looks like a steam leak under the insulation around some pipe work taking process steam to the cookers. The footprint on the lagging tells its own story here! I discuss my initial findings with Jim and he gives me feedback on the roller. They will run until the end of this shift and then change the roller out – it shouldn't take long as they keep a complete roller assembly in stock – this wouldn't have been the case if the belt had failed – that would have taken 4 hours to change and while the spares aren't too expensive, the lost production would have cost the best part of £10,000.

**15:00** – At home booting up my computer. The ThermoCAM Reporter software runs within Microsoft Word and I have set up a template for my reports. By simply connecting up my camera I can see all the images on the memory card and drag them over onto the template. The software automatically creates the bones of my report – including inserting the visual and thermal images together and adding the voice records. I have also set it up to put temperature data from spots and areas of interest automatically into a table. This one feature saves me more time than any other - I can now concentrate on reviewing the images and making recommendations rather than typesetting and layout. I also use the database option to compare the results from my previous visits.

**17:30** – I email my report to Jim as a Microsoft Word document, and have recommended that the elevated temperatures on the HV switchgear components are checked at the shutdown – I suspect a loose connection – it may only be finger-tight, but this is enough to lead to bigger problems later. The lagging can be replaced at the shutdown. The roller will be replaced this evening. I get the batteries out of the camera case and put them back on charge – they'll be needed in the morning for the next job!



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