Abstract

In a three-phase transformer, irregular temperature variation carries information on the underlying faults. In this paper, a fault detection method for three-phase distribution transformers has been developed to identify the type of fault needed for preventive maintenance. Infrared thermography and image processing techniques, like Otsu thresholding, Canny edge detection, image segmentation, and histogram equalization were used in the enhancement of the thermograms to identify the regions of interest (ROIs) from which temperature data have been extracted. It has been established that temperature variation resulting from local faults like loose cable connections have weak correlation compared to those that emanate from loading effects on a transformer. The proposed method is non-invasive, safer and cheaper compared to the conventional methods.

References

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Application of Infrared Thermography in Fault Detection and Preventive Maintenance in Three-Phase Distribution Transformers

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