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IDENTIFICATION AND CLASSIFICATION OF TRANSFORMERS CURRENT TRANSIENTS THROUGH HUANG HILBERT TRANSFORM

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Abstract

During the insertion stage, transformers as well as all induction machines draw a current whose amplitude is several times higher than the rated value and, therefore, can result in unintentional open of protection overcurrent relays. This way, it should be advisable that relays have the capability of recognizing the event that caused the detected overcurrent; smart protections turns out to be a relevant and challenging issue for plants compliant with Industry 4.0, since they offer the opportunity of avoiding undesired production suspension. To this aim, a method, based on the Huang Hilbert Transform (HHT), for the identification and classification of transient currents in a single-phase transformer, is proposed. More specifically, a proper index, referred to as form factor deviation, is defined and evaluated on in-

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