

Estimation of Harmonics in Three-Phase and Six-Phase-Phase (Multi-Phase) Load Circuits

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Abstract : The harmonics are very harmful within an electrical system and can have serious consequences such as reducing the life of apparatus, stress on cable and equipment etc. This paper cites extensive analytical study of harmonic characteristics of multiphase (six-phase) and three-phase system equipped with two and three level inverters for non-linear loads. Multilevel inverter has elevated voltage capability with voltage limited devices, low harmonic distortion, abridged switching losses. Multiphase technology also plays a promising role in harmonic reduction. Matlab simulation is carried out to compare the advantage of multi-phase over three phase systems equipped with two or three level inverters for non-linear load harmonic reduction. The extensive simulation results are presented based on case studies.

Keywords : fast Fourier transform (FFT), harmonics, inverter, ripples, total harmonic distortion (THD)

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