

Power and Energy Engineering

September 29-30, 2016 London, UK

A harmonic reduction scheme for 12-pulse thyristor rectifiers

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Three phase controlled rectifiers are the most commonly used converter type among power electronics converters. Their total harmonic distortion of the input current (THDi) is very high. Decreasing THDi value is very important to comply with IEEE-519 standards and IEC-61000-3-2, and for power quality issues. This paper deals with a high power thyristor rectifier with low harmonics and high power factor. In this study, harmonic mitigation techniques for thyristor rectifiers are investigated. Furthermore, a thyristor rectifier which comply with IEEE-519 standards and IEC-6100-3-2 is proposed. The proposed system is evaluated according to input current total harmonic distortion, the input power factor and, line voltage unbalance sensitivity. The reduction in the input current harmonics is verified by simulation results.

Biography

Özgün Girgin received the BS and MS degrees in Electrical Engineering from Yıldız Technical University, Turkey, in 2010 and 2013, respectively. He is working towards the PhD degree in Electrical Engineering. He is also a Research Assistant in the Department of Electrical Engineering, Yıldız Technical University. His research interests include AC-DC converters, inverters and soft switching techniques in power electronics. He was also employed in two research projects concerning power electronics.

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