Capacitor Voltages Measurement and Balancing in Flying Capacitor Multilevel Converters Utilizing a Single Voltage Sensor - DTU Orbit (17/12/2018)

**Capacitor Voltages Measurement and Balancing in Flying Capacitor Multilevel Converters Utilizing a Single Voltage Sensor**

This paper proposes a new method for measuring capacitor voltages in multilevel flying capacitor (FC) converters that requires only one voltage sensor per phase leg. Multiple dc voltage sensors traditionally used to measure the capacitor voltages are replaced with a single voltage sensor at the ac side of the phase leg. The proposed method is subsequently used to balance the capacitor voltages using only the measured ac voltage. The operation of the proposed measurement and balancing method is independent of the number of the converter levels. Experimental results presented for a five-level FC converter verify effective operation of the proposed method.

**General information**
State: Published
Organisations: Department of Electrical Engineering, Center for Electric Power and Energy, Electric Equipment Technologies, Nanyang Technological University, University of New South Wales, University of Sharjah
Pages: 8115-8123
Publication date: 2017
Peer-reviewed: Yes

**Publication information**
Journal: IEEE Transactions on Power Electronics
Volume: 32
Issue number: 10
ISSN (Print): 0885-8993
Ratings:
BFI (2018): BFI-level 2
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 2
Scopus rating (2017): CiteScore 9.08 SJR 2.215 SNIP 3.106
Web of Science (2017): Impact factor 6.812
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 2
Scopus rating (2016): CiteScore 9.96 SJR 2.254 SNIP 3.563
Web of Science (2016): Impact factor 7.151
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 9.2 SJR 2.267 SNIP 3.808
Web of Science (2015): Indexed yes
BFI (2014): BFI-level 2
Scopus rating (2014): CiteScore 8.78 SJR 2.115 SNIP 4.252
Web of Science (2014): Impact factor 6.008
Web of Science (2014): Indexed yes
BFI (2013): BFI-level 2
Scopus rating (2013): CiteScore 8.41 SJR 2.189 SNIP 4.324
Web of Science (2013): Impact factor 5.726
ISI indexed (2013): ISI indexed yes
Web of Science (2013): Indexed yes
BFI (2012): BFI-level 2
Scopus rating (2012): CiteScore 6.98 SJR 1.918 SNIP 3.859
Web of Science (2012): Impact factor 4.08
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
BFI (2011): BFI-level 2
Scopus rating (2011): CiteScore 7.12 SJR 2.009 SNIP 3.379
Web of Science (2011): Impact factor 4.65