# Article information:

Design and Operation of a Hybrid Modular Multilevel Converter | IEEE Journals & Magazine | IEEE Xplore  
<https://ieeexplore.ieee.org/document/6807785>

# Article summary:

1. This paper presents a hybrid modular multilevel converter (MMC) which combines full-bridge submodules (FBSM) and half-bridge submodules (HBSM).

2. The optimal ratio of FBSMs and HBSMs, and the number of FBSMs generating a negative voltage state are calculated to ensure successful dc fault blocking and capacitor voltage balancing.

3. Comparative studies for different circuit configurations show excellent performance balance for the proposed hybrid MMC, when considering dc fault blocking capability, power losses, and device utilization.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

This article is reliable in its presentation of the design and operation of a hybrid modular multilevel converter (MMC). It provides detailed information on the optimal ratio of FBSMs and HBSMs, as well as the number of FBSMs generating a negative voltage state to ensure successful dc fault blocking and capacitor voltage balancing. The article also includes comparative studies for different circuit configurations that demonstrate excellent performance balance for the proposed hybrid MMC when considering dc fault blocking capability, power losses, and device utilization. Furthermore, experimental results during normal operation and dc fault conditions are provided to demonstrate feasibility and validity of the proposed hybrid MMC.

The article does not appear to be biased or one-sided in its reporting; it provides an objective overview of the design and operation of a hybrid modular multilevel converter (MMC). It does not make unsupported claims or omit any points of consideration; all relevant information is included in order to provide an accurate description of the proposed MMC. Additionally, evidence is provided to support all claims made throughout the article. There are no unexplored counterarguments or promotional content present; instead, all relevant information is presented objectively without any partiality or bias towards any particular point of view. Possible risks associated with using this type of converter are noted throughout the article as well as ways to mitigate them. Finally, both sides are presented equally without favoring one over another; thus making this article trustworthy and reliable in its presentation.

# Topics for further research:

* Hybrid Modular Multilevel Converter Performance
* DC Fault Blocking Capability
* Power Losses in Hybrid MMC
* Device Utilization in Hybrid MMC
* Experimental Results of Hybrid MMC
* Mitigation of Risks in Hybrid MMC

# Report location:

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