ELECTRONICS

Decentralized control of converter for high voltage and high power applications

The market for voltage-source converter HVDC is growing fast. The Modular Multi-Level Converter (MMC) emerging as a front-runner, jointly with the Static Synchronous Compensator (STATCOM). Both have disadvantages: a complex control due to floating capacitors, and they are large and bulky.

DESCRIPTION*

- Decentralized modular solution for serial converter control
- Duplication and integration (“copy/paste”) of a unique control module to each switching cell regardless the number of legs
- Reduction of the efforts (less data to be exchanged) on the supervisor by distributing them among several switching cells
- Interconnection of control modules in a daisy-chaining configuration providing a balanced and dynamic control system
- Considerable simplification and reduction in wiring of the control of the overall converter
- No service disruption in case of component failure

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TECHNICAL SPECIFICATIONS

Type of converters	Modular Multilevel Voltage Source Converters (STATCOM, MMC)
Voltage range	10 kV to 1000 kV
Power level	Few MW to GW
Nb of switching cells	Unlimited

*Technology requiring license rights.

TOULOUSE TECH TRANSFER

COMPETITIVE ADVANTAGES

- Reliability
- Security
- Ease of implementation
- Flexible system architecture
- Space saving
- Costs reduction

APPLICATIONS

- Electrical power transmission networks (HVAC or HVDC)
- SmartGrids (MVAC or MVDC)
- Frequency converter for Railway Networks
- Wind power system
- Metallurgy

INTELLECTUAL PROPERTY

- Patent pending

DEVELOPMENT STAGE

- Experimental proof of concept

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LABORATORY

- Static Converters Group

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