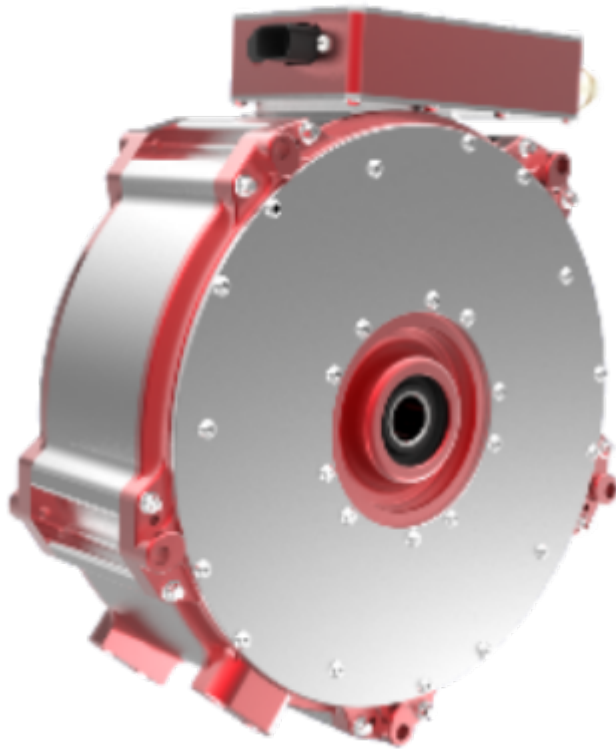


BMSCC



SYNCHRO-SYM Technologies

**– BMSCC: Only Brushless
Multiphase Self-Commutated
Controller –**

Our Mission:

Innovate For Our Clean, Efficient, and Sustainable Energy Future!

BMSCC

BMSCC → BOTTOM LINE UP FRONT:

BMSCC is a patented Brushless Bi-directional Multiphase Self-Commutated Controller (**BMSCC**) with a new electromagnetically symmetrical magnetic sharing circuit and control architecture for a compact, high power, direct AC(1ph,2ph,...)/DC-to-AC(1ph,2ph,...)/DC conversion that realizes a pure [gyrator](#), [synchroconverter](#), or [virtual synchronous machine](#) with automatically exact and inherent resonant switching, which is essential for: 1) the lowest cost, highest efficiency, highest power density smart-power-converter product, 2) leveraging the switching speed, high temperature performance of wide bandgap semiconductors, 3) high efficiency and compact power conditioning, and 4) automatic frequency and phase translation, such as used in the smart grid, photovoltaics (PV), electric vehicles (EV), etc. *BMSCC is the only Bi-Directional Multiphase Inductive Power Transfer System (M-IPTS) with magnetic sharing.*

BMSCC → DETAILS:

BMSCC is a patented Brushless Bi-directional Multiphase Self-Commutated Controller with a new new electromagnetically symmetrical magnetic sharing circuit and control architecture for direct AC(1ph,2ph,...)/DC-to-AC(1ph,2ph,...)/DC conversion that realizes a pure [gyrator](#), [synchro-converter](#), [frequency converter](#), [virtual synchronous machine](#) or the only *Bi-Directional Multiphase Inductive (Wireless) Power Transfer System (M-IPTS)* for future focus of BEM, such as compact, high efficiency, low cost smart-power-converter products for the smart grid, photovoltaics (PV), electric vehicles (EV), fast electric vehicle chargers, static synchronous compensators ([STATCOM](#)) for enabling the flexible AC transmission system ([FACTS](#)), compact high power phase shifting transformer, etc. By electronically controlling the sharing of magnetic energy between phases of a compact and efficient Position Dependent Flux High Frequency Transformer (PDF-HFT) with proprietary modulation techniques under *exact inherent* resonant or soft switching, BMSCC acts as a phase lock loop to directly, sensorlessly, instantaneously, and automatically control *the transfer and translation of speed synchronized, isolated, common mode rejecting, multilevel, bidirectional power with pure sinusoidal waveforms* of any frequency (including DC), any number of phases, or any electrical phase angle (or impedance) to another power with *pure sinusoidal waveforms* of any other frequency, number of phases, or electrical phase angle, all of which can be automatically speed synchronized. For example, SYNCHRO-SYM's Brushless Real Time Emulation Controller (**BRTEC**) comprises BMSCC and as a result, follows a hybrid concept of operation as BRTEC. All is accomplished with a compact, inexpensive, integrated, high power, high efficiency, durable, multiphase position-dependent-flux high frequency transformer (**PDF-HFT**) with simple choppers for inherent resonant switching, which acts as [an inherent active filter that eliminates the need for a DC Link Stage](#) comprising several

banks of large, expensive, inefficient, and delicate low frequency, high power capacitors.

BMSCC → WHITE PAPERS:

[BRUSHLESS MULTIPHASE SELF-COMMUTATION CONTROLLER
\(BMSCC\)](#)
