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**GORSKI et al.**(10) **Pub. No.: US 2024/0178762 A1**(43) **Pub. Date: May 30, 2024**(54) **ELECTRICAL SYSTEM AND CONTROL METHOD**(52) **U.S. Cl.**CPC ..... **H02M 7/04** (2013.01); **H02M 1/44** (2013.01)(71) Applicant: **THERMO KING LLC**, Minneapolis, MN (US)(72) Inventors: **Matthias GORSKI**, Bochum (DE);  
**Eckardt AUGENSTEIN**, Essen (DE)(21) Appl. No.: **18/514,098**(22) Filed: **Nov. 20, 2023**(30) **Foreign Application Priority Data**

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An electrical system and method of operating the same is provided. The electrical system includes a passive filter, an active power converter, a first AC connecting bus extending between the active power converter and the passive filter, a second AC connecting bus extending between the passive filter and an AC network, a DC connecting bus extending between the active power converter and a DC network, and a monitoring arrangement. The method includes operating in a first mode and subsequently operating in a second mode. The first mode includes determining a plurality of parameters of an operating AC voltage of the AC network based on a monitored AC voltage on the first AC connecting bus. The second mode includes controlling the active power converter to convert a DC voltage received from the DC network into an AC voltage for supply to the AC network via the passive filter.

