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WANG et al.(10) **Pub. No.: US 2024/0178768 A1**(43) **Pub. Date: May 30, 2024**(54) **CONTROL METHOD FOR
SEMI-CENTRALIZED OPEN WINDING
MULTI-MOTOR DRIVE SYSTEM****H02P 21/22** (2006.01)**H02P 27/06** (2006.01)(52) **U.S. CL.****CPC** **H02P 5/48** (2013.01); **H02P 21/141**
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ABSTRACT(21) Appl. No.: **18/550,652**(22) PCT Filed: **Apr. 12, 2023**(86) PCT No.: **PCT/CN2023/087733**

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A control method for a semi-centralized open winding multi-motor drive system includes: first, measuring current, voltage and position signal, computing system thrust by a velocity loop; then, distributing the thrust to each motor, converting the thrust into q axis current, computing dq axis voltages required for each motor by a current loop, and transforming the voltage demand to abc coordinate system through coordinate transformation; subsequently, modulating the voltage of each motor into a duty ratio instruction to judge whether the motor is in an over-modulated operating area, and performing over-modulation processing on the voltage in the over-modulated area; and finally, distributing the duty ratio instructions to independent and shared inverters. The control method of the present disclosure can reduce the hardware cost and improve the safety and reliability of the system.

