

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2024/0213763 A1 Rasch et al.

Jun. 27, 2024 (43) **Pub. Date:**

(54) METHOD AND CONTROL UNIT FOR OPERATING A SWITCH DEVICE HAVING A SWITCH UNIT, AND SWITCH DEVICE

(71) Applicant: ZF Friedrichshafen AG,

Friedrichshafen (DE)

(72) Inventors: Marc Rasch, Immenstaad (DE);

Sebastian Besold, Neudrossenfeld (DE)

Assignee: ZF Friedrichshafen AG,

Friedrichshafen (DE)

Appl. No.: 18/391,001 (21)

(22)Filed: Dec. 20, 2023

(30)Foreign Application Priority Data

(DE) 102022214264.0

Publication Classification

(51) Int. Cl. H02H 7/122 (2006.01)H02H 7/22 (2006.01) H02M 1/00 (2006.01)H02M 1/32 (2006.01)H02M 1/36 (2006.01)

(52) U.S. Cl.

CPC H02H 7/1225 (2013.01); H02H 7/222 (2013.01); H02M 1/0009 (2021.05); H02M 1/327 (2021.05); H02M 1/36 (2013.01); B60L *15/007* (2013.01)

(57)ABSTRACT

A switch device includes a switch unit which has first and second connections, a control connection, and multiple switches connected between the first and second connection and which are jointly activated or activatable by the control connection. A method comprises reading a measurement signal via an interface into a measuring unit, wherein the measurement signal represents an actual parameter of the switch unit, determining a fault state of the switch unit if the actual parameter is in a predetermined relationship with a predefined target parameter, and providing a fault protection signal in response to the determined fault state, wherein the fault protection signal is configured to activate at least one fault protection switch and thereby apply a protection signal to the control connection, by which the switches are closed or kept closed.

