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**Industrial trucks - Electrical control systems - Terminology and
classification**

工业车辆 电气控制系统 术语与分类

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Industrial Vehicles (SAC/TC332). This document was drafted by: Henan Jiachen Intelligent Control Co., Ltd., Beijing Hoisting and Conveying Machinery Design and Research Institute Co., Ltd., Linde (China) Forklift Co., Ltd., Hangcha Group Co., Ltd., Anhui Heli Co., Ltd., Ningbo Ruyi Co., Ltd., Nolzhi Energy Equipment Co., Ltd., Fanji Technology (Suzhou) Co., Ltd., Zhejiang Zhongli Machinery Co., Ltd., Hefei Banyitong Technology Development Co., Ltd. Ltd., Longgong (Shanghai) Forklift Co., Ltd., Sany Robotics Technology Co., Ltd., Sapai (Shanghai) Electronic Equipment Co., Ltd., Anhui Wannan Xinwei Electric Co., Ltd., Hefei Xieli Instrument Control Technology Co., Ltd., Hangzhou Hangcha Electric Co., Ltd., and Taiyuan University of Science and Technology. The main drafters of this document are. Li Fei, Zhao Chunhui, Yao Xin, Wang Dan, Zhou Weihe, Guan Wenjie, Ni Jingzhong, Fu Min, Shi Linqiang, Li Bo, Li Li, Fu Xiaoxia, Ma Yi, Guo Hong, Xu Furong, Pan Jin, Yu Shaohua, Li Minghui, Zhao Zhicheng. Terminology and classification of electrical control systems for industrial vehicles

1 Scope

China's national terminology and classification for the electrical control systems of industrial trucks. A forklift's control system has changed completely in two decades: the contactor-and-resistor arrangement that switched a series motor between fixed speeds has been replaced by an electronic controller driving an AC induction or permanent magnet motor, with regenerative braking, programmable performance curves, and integration with the truck's stability and telemetry functions. That change brought a vocabulary that was not

settled, and it brought a classification problem that matters practically: control systems now differ in ways that determine what a truck can do and what it costs to maintain, and a buyer comparing two machines needs the categories to mean the same thing. Fixing the terms is also a safety precondition, since the control system now performs functions - speed limiting, load-dependent behaviour - on which the truck's stability depends.

This document defines the terminology and classification of electrical control systems for industrial vehicles. This document applies to the electrical control systems of various types of industrial vehicles defined in GB/T 6104.1.

2 Normative references

This document has no normative references.

3 Terms and definitions

3.1 Energy system A system that provides energy for industrial vehicles and ensures their stable operation.

3.2 Lead-acid battery A battery that uses lead dioxide as the positive active material, lead as the negative active material, and sulfuric acid solution as the electrolyte. [Source: GB/T 19596-2017, 3.3.1.2.2]

3.3 lithiumionbattery Lithium ions are used as conductive ions to move between the anode and cathode, and charge and discharge are achieved through the mutual conversion of chemical energy and electrical energy. Battery. [Source: GB/T 19596-2017, 3.3.1.2.1]

3.4 Sodium ion battery Sodium ions are used as conductive ions to move between the anode and cathode, and charge and discharge are achieved through the mutual conversion of chemical energy and electrical energy. Battery.

3.5 Fuel cell An electrochemical device that converts the chemical energy of a fuel and an oxidant directly into electrical energy (direct current), heat, and reaction products. NOTE. The fuel and oxidant are typically stored external to the fuel cell and input into the fuel cell as they are consumed. [Source: GB/T 28816-2020, 3.43]

3.6 Monitor the battery status (temperature, voltage, state of charge, etc.), provide communication, safety, cell balancing and management control for the battery, and provide A system that provides a communication interface with application equipment. [Source: GB/T 19596-2017, 3.3.2.1.10, modified]