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**Communication Protocols for Swapping Battery Pack of
Electric Vehicle**

电动汽车快换电池箱通信协议

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Communication Protocols for Swapping Battery Pack of Electric Vehicle

1 SCOPE

This document specifies the physical layer, data link layer and application layer of the Controller Area Network (CAN2.0/CAN FD) based communication for swapping battery pack of electric vehicle (hereinafter referred to as “battery pack”), the overall communication process, CAN Messages, and the interchangeability requirements.

This document is applicable to the communications between the battery pack and the battery swap station charging system (hereinafter referred to as “battery swap station”).

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 19596	Terminology of electric vehicles
GB/T 27930	Digital communication protocols between off-board conductive charger and electric vehicle
GB/T 29317	Terminology of electric vehicle charging/battery swap infrastructure
ISO 11898-1	Road vehicles - Controller area network (CAN) - Part 1: Data link layer and physical coding sublayer
ISO 11898-2	Road vehicles - Controller area network (CAN) - Part 2: High-speed physical medium attachment (PMA) sublayer
ISO 11898-5	Road vehicles - Controller area network (CAN) - Part 5: High-speed medium access unit with low-power mode
SAE J1939-11	Recommended practice for serial control and communication vehicle network – Part 11: Physical layer - 250kbps/s, twisted shielded pair
SAE J1939-73: 2006	Recommended practice for serial control and communication vehicle network – Part 73: Application Layer— Diagnostics
SAE J1939-81: 2006	Recommended practice for serial control and communication vehicle network – Part 81: Network Management

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions established in GB/T 19596 and GB/T 29317, as well as the following apply.

3.1 frame

a series of ordered data bits that make up a complete information

Note: The frame is divided into several fields, each of which contains the predefined types of data.

3.2 CAN data frame

ordered bit fields necessary for constituting the CAN protocol for data transmission, starting with the Start of Frame (SOF) and ending with the End of Frame (EOF)

3.3 messages

one or more CAN data frames with the same PGN

3.4 identifier

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