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Replacing GB/T 32960.3-2016

**Technical specifications for remote service and management
system for electric vehicles - Part 3: Communication protocol
and data format**

电动汽车远程服务与管理系统技术规范 第3部分：通信协议及数据格式

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Table of Contents

Foreword	3
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 General requirements	10
5 Communication connection	10
5.1 Connection establishment	10
5.2 Information transmission	11
5.3 Disconnection	12
5.4 Retransmission mechanism	12
6 Data packet structure and definition	13
6.1 Data description	13
6.2 Data packet structure	13
6.3 Command unit	14
6.4 Time	15
7 Data unit format and definition	16
7.1 Vehicle login	16
7.2 Real-time information reporting	16
7.3 Vehicle logout	28
7.4 Platform login	28
7.5 Platform logout	29
7.6 Data unit encryption key exchange	29
Appendix A (Normative) Partial field definition	30
A.1 Gear status definition	30
A.2 Vehicle static information	30
Appendix B (Informative) Communication protocol from onboard terminal to platform	34
B.2 Information transmission	34
B.3 Data packet structure and definition	39

Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

This document is Part 3 of GB/T 32960 "Technical specifications for remote service and management system for electric vehicles". GB/T 32960 has published the following parts. - Part 1: General principle; - Part 2: On-board terminal;

- Part 3: Communication protocol and data format; - Part 4: Conformance test.

This document replaces GB/T 32960.3-2016 "Technical specifications for remote service and management system for electric vehicles - Part 3: Communication protocol and data format". Compared with GB/T 32960.3-2016, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) ADD communication security requirements between platforms and between onboard terminals and platforms (see 5.1 and B.2.1 of Appendix B);
- b) ADD the definition of terms for the minimum parallel unit of power batteries and the transmission requirements of voltage data, power battery temperature data, fuel cell stack data, supercapacitor data, supercapacitor extreme value data (see 5.2.3, 5.2.4, B.2.1 of Appendix B);
- c) ADD the vehicle data transmission requirements after the vehicle is under high voltage after driving or charging is completed and during the thermal event alarm (see 5.2.4 and B.2.1 of Appendix B);
- d) ADD the distinction of protocol version numbers (see 6.2);
- e) ADD the definition of the response error flag (see 6.3.2);
- f) ADD the data transmission format and definition of "Number of battery management systems", "Number of power battery packs corresponding to the battery management system", "Power battery pack coding"; DELETE the definition of the rechargeable energy storage device subsystem, changing it into distinguishing and collection of the number of BMS systems; DELETE the data transmission format and definition of "Number of rechargeable energy storage subsystems", "Rechargeable energy storage system coding length", "Rechargeable energy storage system coding" (see 7.1; 7.1 of the 2016 edition);
- g) ADD the transmission format and definition of signature information (see 7.2.1, 7.2.2, B.3.5.2.1, B.3.5.2.2 of Appendix B), activation information, activation result response information (see B.3.5.5; B.3.5.6 of Appendix B);
- h) ADD the power battery minimum parallel unit voltage data, power battery temperature data, fuel cell stack data, supercapacitor data, supercapacitor extreme value information type flag (see 7.2.3 and B.3.5.2.3 of Appendix B);
- i) ADD the transmission format and definition of power battery minimum parallel unit voltage

data (see 7.2.4.2 and B.3.5.3.2 of Appendix B), power battery temperature data (see 7.2.4.3 and B.3.5.3.3 of Appendix B), fuel cell stack data (see 7.2.4.6 and B.3.5.3.6 of Appendix B), supercapacitor data (see 7.2.4.10 and B.3.5.3.10 of Appendix B), supercapacitor extreme value data (see 7.2.4.11 and B.3.5.3.11 of Appendix B);

j) CHANGE the description of "rechargeable energy storage device voltage data" to "power battery minimum parallel unit voltage data" (see 7.2.4.2 and B.3.5.3.2 of

Appendix B ; B.3.5.3.8 of Appendix B of the 2016 edition); CHANGE the

description of "rechargeable energy storage device temperature data" to "power battery temperature data" (see 7.2.4.3 and B.3.5.3.3 of Appendix B; B.3.5.3.9 of

Appendix B of the 2016 edition);

k) DELETE the data format and definition of power battery extreme value (see 7.2.3.6 of the 2016 edition);

l) DELETE the rechargeable energy storage device voltage data (see B.3.5.3.8 of

Appendix B of the 2016 edition); DELETE the rechargeable energy storage

device temperature data (see B.3.5.3.9 of Appendix B of the 2016 edition);

m) CHANGE the vehicle speed, total voltage, total current range, insulation resistance value definition in vehicle data (see 7.2.4.1; 7.2.3.1 of the 2016 edition);

n) DELETE the format and definition of motor controller input voltage and motor controller DC bus current (see 7.2.3.2 of the 2016 edition); CHANGE the drive motor speed and drive motor torque range in the drive motor data (see 7.2.4.4; 7.2.3.2 of the 2016 edition);

o) CHANGE the "Fuel cell data" to "Fuel cell engine and onboard hydrogen system data"; CHANGE the definition of probe temperature value (see 7.2.4.5; 7.2.3.3 of the 2016 edition); ADD the format and definition of the remaining hydrogen percentage, high-voltage DC/DC controller temperature (see 7.2.4.5); DELETE the fuel cell voltage and fuel cell current data (see 7.2.3.3 of the 2016 edition);

p) DELETE the format and definition of the average fuel consumption rate per 100 kilometers in the engine state (see 7.2.3.4 of the 2016 edition);

q) CHANGE the vehicle position data transmission requirements (see 7.2.4.8; 7.2.3.5 of the 2016 edition);

r) ADD the "thermal event alarm" level and alarm identification bit; ADD the relevant alarm

identification bits involved in the fuel cell engine and the on-board hydrogen system, fuel cell stack, supercapacitor system, drive motor; ADD the format and definition of alarm level data transmission (see 7.2.4.9);

s) ADD the gear state invalid/valid state identification (see A.1 of Appendix A);

t) CHANGE the vehicle static information list (see A.2 of Appendix A; A.2 of

Appendix A of the 2016 edition).

Please note that some of the contents of this document may involve patents. The issuing agency of this document does not assume the responsibility for identifying patents.

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This document shall be under the jurisdiction of the National Technical Committee for Automobile Standardization (SAC/TC 114).

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The main drafters of this document. Zhang Zhaosheng, Zheng Tianlei, Yu Yang, Liu Shaohui, Dou Rupeng, Sun Wenjun, Zhang Kaiming, Li Gang, Zhu Hao, Jin Xiulian, Jiang Feng, Liang Qun, Wu Feng, Xu Jianbo, Wang Xu, Wang Zhenpo, Qian Li, Liu Peng, Wang Jia, Guo Xiaomeng, Zhou Lin, Ding Jie, Zheng Guangzhou, Ma Qizhen, Yan Jing, Li Xue, Wu Shaohua, Cheng Xuefeng, Zhang Qian, Zhen Jie, Zhu Pingqing, Zhu Tie.

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Introduction

With the encouragement and support of a series of national policies, electric vehicle technology has developed rapidly and the scale of the industry has expanded rapidly. In order to improve the remote monitoring capabilities of electric vehicles, strengthen the supervision of electric vehicle operation safety, promote the technological progress and promotion and application of the electric vehicle industry, it is necessary to formulate a