ICS 43.120
CCS T 35

中 华 人 民 共 和 国 国 家 标 准
NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 27930.2-2024

Digital Communication Protocols Between Off-Board Conductive Charger and Electric Vehicle—Part 2: Communication Protocols for GB/T 20234.3
非车载传导式充电机与电动汽车之间的数字通信协议 第 2 部分：用于 GB/T 20234.3 的通信协议

(English Translation)

Issued on 2024-12-31 **Implemented on 2024-12-31**

Jointly Issued by
State Administration for Market Regulation of the People's Republic of China &
Standardization Administration of the People's Republic of China

CONTENTS

Digital Communication Protocols Between Off-Board Conductive Charger and Electric Vehicle—Part 2: Communication Protocols for GB/T 20234.3

1 SCOPE

This document specifies the physical layer, data link layer, transport layer and application layer of the Controller Area Network (CAN)-based communication protocol, intended for the DC charging couplers set out in GB/T 20234.3, between the DC charging communication controller of electric vehicles and the charging communication controller of off-board conductive chargers.

This document is applicable to the digital communication between the electric vehicle (hereinafter referred to as “vehicle”) and off-board conductive charger (hereinafter referred to as “charger”), of which the DC control pilot circuit and control principle meet the requirements of GB/T 18487.5.

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 1988 Information technology-7-bit coded character set for information interchange

GB 16735 Road vehicle—Vehicle identification number (VIN)

GB 18030 Information technology—Chinese coded character set

GB/T 18487.5 Electric vehicle conductive charging system—Part 5: DC charging system for GB/T 20234.3

GB/T 19596 Terminology of electric vehicles

GB/T 20234.3 Connection set for conductive charging of electric vehicles—Part 3: DC charging coupler

GB/T 27930-2023 Digital communication protocols between off-board conductive charger and electric vehicle

GB/T 29317 Terminology of electric vehicle charging/battery swap infrastructure

3 TERMS AND DEFINITIONS

For the purpose of this document, the terms and definitions given in GB/T 19596, GB/T GB/T 27930-2023 and GB/T 29317, as well as the following apply.

3.1 function module

a number of definable minimum units with specific service functions, into which the charging communication interaction process is divided

3.2 public message

a message that can be exchanged among all function modules in the application layer when the transmission conditions are met

4 ABBREVIATIONS

For the purpose of this document, the following abbreviations apply.

CAN: Controller Area Network

CP: Control Pilot

EVCC: Electric Vehicle Communication Controller

LM: Long Message

LM_ACK: Long Message Acknowledgment)

LM_EndofACK: Long Message End of Acknowledgment

LM_NACK: Long Message Negative Acknowledgment

SECC: Supply Equipment Communication Controller

SM: Short Message

SM_ACK: Short Message Acknowledgment

SM_RM: Reliable Short Message

SM_URM: Unreliable Short Message

TL: Transport Layer

5 GENERAL REQUIREMENTS

5.1 The charging coupler to which the digital communication protocol specified in this document applies shall be as set out in GB/T 20234.3.

5.2 The DC charging system to which the digital communication protocol specified in this document applies shall be as set out in GB/T 18487.5.

5.3 The communication network between the vehicle and the charger is based on the CAN2.0B protocol, and the communication model is divided into the physical layer, data link layer, transport layer, and application layer, as specified in Clause 6, Clause 7, Clause 8 and Clause 9, respectively. The protocol architecture layered model is shown in Figure 1.

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