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**In-cable control and protection device for mode 2 charging
of electric road vehicles (IC-CPD)**

电动汽车模式 2 充电的缆上控制与保护装置 (IC-CPD)

(IEC 62752:2018, MOD)

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Foreword

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

This document modifies and adopts IEC 62752:2018 "In-cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD)".

Compared with IEC 62752:2018, this document has made the following structural adjustments:

- 4.1 corresponds to 4.1.2 in IEC 62752:2018. Delete 4.1.1, 4.1.3, and 4.1.4;
- 4.6 corresponds to 4.6.1 in IEC 62752:2018. Delete 4.6.2 and 4.6.3.

The technical differences between this document and IEC 62752:2018 and their reasons are as follows:

- Use normatively-referenced GB/T 2099.1-2021 to replace IEC 60884-1:2013. The degree of consistency between the two documents is MOD, to adapt to the technical conditions of China and increase operability (see Clause 1, Table 4, 8.1, 8.3.1, 8.4.3, 8.5.2, 9.2, 9.9.3, 9.20, 9.21, 9.23, 9.34.1, A.1);
- Use normatively-referenced GB/T 1043.1 to replace ISO 179-1, to adapt to the technical conditions of China and increase operability (see 9.31);
- Use normatively-referenced GB/T 2423.1 to replace IEC 60068-2-1, to adapt to the technical conditions of China and increase operability (see 9.35);
- Use normatively-referenced GB/T 2423.4 to replace IEC 60068-2-30, to adapt to the technical conditions of China and increase operability (see 9.17.1.1, 9.17.1.4, 9.32.1, 9.32.2);
- Use normatively-referenced GB/T 2423.5 to replace IEC 60068-2-27, to adapt to the technical conditions of China and increase operability (see 9.36);
- Use normatively-referenced GB/T 2423.7 to replace IEC 60068-2-31, to adapt to the technical conditions of China and increase operability (see 9.10.2);
- Use normatively-referenced GB/T 2423.17 to replace IEC 60068-2-11, to adapt to the technical conditions of China and increase operability (see 9.32.1 and 9.32.2);
- Use normatively-referenced GB/T 2423.24 to replace IEC 60068-2-5, to adapt to the technical conditions of China and increase operability (see 9.30);
- Use normatively-referenced GB/T 2423.56 to replace IEC 60068-2-64, to adapt to

In-cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD)

1 Scope

This document applies to in-cable control and protection devices for mode 2 charging of electric road vehicles, hereafter referred to as IC-CPD including control and safety functions.

This document applies to portable devices performing simultaneously the functions of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value.

The IC-CPD according to this document

- has a control pilot function controller in accordance with GB/T 18487.1-2015, Annex A;
- checks supply conditions and prevents charging in case of supply faults under specified conditions;
- may have a switched protective conductor.

These IC-CPDs are intended for use in TN-, and TT-systems. The use in IT systems may be limited.

Residual currents with frequencies different from the rated frequency, d.c. residual currents and specific environmental situation are considered.

This document is applicable to IC-CPDs performing the safety and control functions as required in GB/T 18487.1 for mode 2 charging of electric vehicles.

This document is applicable to IC-CPDs for single-phase circuits not exceeding 250 V, their maximum rated current not exceeding 16 A.

This document is applicable to IC-CPDs to be used in a.c. circuits only, with preferred values of rated frequency 50 Hz, 60 Hz or 50/60 Hz. IC-CPDs according to this document are not intended to be used to supply electric energy towards the connected grid.

This document is applicable to IC-CPDs having a rated residual operating current not exceeding 30 mA and are intended to provide additional protection for the circuit downstream of the IC-CPD in situations where it cannot be guaranteed that the

installation is equipped with an RCD with $I_{\Delta n} \leq 30$ mA.

The IC-CPD consists of:

- a plug for connection to a socket-outlet in the fixed installation;
- one or more subassemblies containing the control and protection features;
- a cable between the plug and the subassemblies (optional);
- a cable between the subassemblies and the vehicle connector (optional);
- a vehicle connector for connection to the electric vehicle.

For plugs for household and similar use GB/T 2099.1-2021 apply. Types, basic parameters and dimensions are in accordance with GB/T 1002.

Plugs, connectors and cables which are part of the IC-CPD are not tested according to this document. These parts are tested separately according to their specific product standard.

The switching contacts of the IC-CPD are not required to provide isolation, as isolation can be ensured by disconnecting the plug.

The IC-CPD may have a non-replaceable integral fuse in the phase(s) and/or neutral current path.

The IC-CPD is not considered to be a protective device for use in fixed installations.

2 Normative references

The contents of the following documents, through normative references in this text, constitute indispensable provisions of this document. Among them, for dated references, only the edition corresponding to that date applies to this document. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1002 Single phase plugs and socket-outlets for household and similar purposes
- Types, basic parameters and dimensions

GB/T 1043 (all parts) Plastics - Determination of Charpy impact properties [ISO 179 (all parts)]

Note: GB/T 1043.1-2008 Plastics - Determination of Charpy impact properties - Part 1: Non-instrumented impact test (ISO 179-1:2000, IDT);

GB/T 1043.2-2008 Plastics - Determination of Charpy impact properties - Part 2: Instrumented impact test (ISO 179-2:1997, IDT).

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