SVENSK STANDARD

SS-EN IEC 63110-1, utg 1:2023

Fastställd	Sida	Ansvarig kommitté
2023-03-22	1 (155)	SEK TK 69

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Protokoll för styrning av laddnings- och urladdningsinfrastruktur hos elfordon – Del 1: Definitioner, användningsfall och uppbyggnad

Protocol for management of electric vehicles charging and discharging infrastructures – Part 1: Basic definitions, use cases and architectures

Som svensk standard gäller europastandarden EN IEC 63110-1:2022. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 63110-1:2022.

Nationellt förord

Europastandarden EN IEC 63110-1:2022

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 63110-1, First edition, 2022 - Protocol for management of electric vehicles charging and discharging infrastructures – Part 1: Basic definitions, use cases and architectures**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 43.120.00; 03.100.70

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 63110-1

September 2022

ICS 43.120; 03.100.70

English Version

Protocol for management of electric vehicles charging and discharging infrastructures - Part 1: Basic definitions, use cases and architectures (IEC 63110-1:2022)

Protocole de gestion des infrastructures de charge et de décharge des véhicules électriques - Partie 1: Définitions de base, cas d'utilisation et architectures (IEC 63110-1:2022)

Protokoll zum Management von Lade- und Entladeinfrastruktur für Elektrofahrzeuge - Teil 1: Grundlegende Begriffe, Anwendungsfälle und Architektur (IEC 63110-1:2022)

This European Standard was approved by CENELEC on 2022-09-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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SEK Svensk Elstandard SS-EN IEC 63110-1, utg 1:2023

European foreword

The text of document 69/837/FDIS, future edition 1 of IEC 63110-1, prepared by IEC/TC 69 "Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63110-1:2022.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2023-06-02
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2025-09-02

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 63110-1:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61850-7-420	NOTE Harmonized as EN IEC 61850-7-420
IEC 61851-1:2017	NOTE Harmonized as EN IEC 61851-1:2019 (not modified)
IEC 61851-23	NOTE Harmonized as EN 61851-23
IEC 61851-25	NOTE Harmonized as EN IEC 61851-25
IEC 61970 (series)	NOTE Harmonized as EN IEC 61970 (series)
IEC 62559-2:2015	NOTE Harmonized as EN 62559-2:2015 (not modified)
IEC 63119 (series)	NOTE Harmonized as EN IEC 63119 (series)
ISO 15118-1:2019	NOTE Harmonized as EN ISO 15118-1:2019 (not modified)
ISO 15118-20	NOTE Harmonized as EN ISO 15118-20

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Publication	Year	Title	EN/HD	Year
ISO 15118	series	Road vehicles - Vehicle to grid communication interface	EN ISO 15118	series
-	2013	INTERNET ENGINEERING TASK FORCE (IETF). RFC 6960: X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP [online]. S. Santesson et al. June 2013 [viewed 2022-01-26].	-	-

IEC 63110-1

Edition 1.0 2022-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Protocol for management of electric vehicles charging and discharging infrastructures – Part 1: Basic definitions, use cases and architectures

Protocole de gestion des infrastructures de charge et de décharge des véhicules électriques – Partie 1: Définitions de base, cas d'utilisation et architectures

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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PROTOCOL FOR MANAGEMENT OF ELECTRIC VEHICLES CHARGING AND DISCHARGING INFRASTRUCTURES –

Part 1: Basic definitions, use cases and architectures

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 63110-1 has been prepared by IEC technical committee 69: Electrical power/energy transfer systems for electrically propelled road vehicles and industrial trucks. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
69/837/FDIS	69/843/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 63110 series, published under the general title *Protocol for management of electric vehicles charging and discharging infrastructures*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

In recent years, the necessity of reducing greenhouse gas emissions has led the automotive industry to develop vehicles propelled by electric energy. Among them, the success of vehicles with electric rechargeable batteries has marked the beginning of the deployment of electric charging infrastructures.

During the first years, solutions for management of charging infrastructures were based on industry alliance specifications or proprietary protocols. They greatly contributed to education and involvement of early EV adopters. However, with the coming mass development of e-mobility required by the latest energy policies in most countries, it is necessary to standardize the communication protocol between charging infrastructures and charging stations operators in order to establish an international, safe, secure, interoperable and grid friendly e-mobility eco-system.

This standardized protocol is beneficial to all actors belonging to the e-mobility environment such as EV manufacturers, charging station manufacturers and operators, e-mobility service providers, grid network operators, distribution system operators (DSO) and transmission system operators (TSO), flexibility operators (FO), balance responsible parties and of course the EV users.

Special attention is paid to the security and traceability of the transactions with respect to identification and payment, but also to privacy regulations in force in many countries in order to avoid malicious or criminal use of the charging station.

The general requirements and definitions of this document form the basic framework for all use case descriptions and related documents in IEC 63110 (all parts). This document is the result of a large consensus among all the actors of e-mobility and should be considered as a guideline for implementers of IEC 63110 (all parts).

Technical specifications and requirements of the IEC 63110 protocol will be defined in a future part of IEC 63110.

PROTOCOL FOR MANAGEMENT OF ELECTRIC VEHICLES CHARGING AND DISCHARGING INFRASTRUCTURES –

Part 1: Basic definitions, use cases and architectures

1 Scope

This part of IEC 63110, as a basis for the other parts of IEC 63110, covers the definitions, use cases and architecture for the management of electric vehicle charging and discharging infrastructures.

It addresses the general requirements for the establishment of an e-mobility eco-system, therefore covering the communication flows between different e-mobility actors as well as data flows with the electric power system.

This document covers the following features:

– management of energy transfer (e.g., charging session), reporting, including information exchanges related to the required energy, grid usage, contractual data, and metering data;

– asset management of EVSE, including controlling, monitoring, maintaining, provisioning, firmware update and configuration (profiles) of EVSE;

– authentication/authorization/payment of charging and discharging sessions, including roaming, pricing, and metering information;

– the provision of other e-mobility services;

– cybersecurity.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15118 (all parts), *Road vehicles – Vehicle to grid communication interface*

INTERNET ENGINEERING TASK FORCE (IETF). RFC 6960: *X.509 Internet Public Key Infrastructure Online Certificate Status Protocol – OCSP* [online]. S. Santesson et al. June 2013 [viewed 2022-01-26]. Available at: https://www.ietf.org/rfc/rfc6960.txt