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# INTERNATIONAL STANDARD

**Lighting systems - Electro-mechanical interfaces -**
**Part 1: Safety**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Lighting systems - Electro-mechanical interfaces - Part 1: Safety

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IEC 63494-1 has been prepared by IEC technical committee 34: Lighting. It is an International Standard.

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

| Draft | Report on voting |
|---|---|
| 34/1411/FDIS | 34/1425/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.

A list of all parts in the IEC 63494 series, published under the general title *Lighting systems - Electro-mechanical interfaces*, can be found on the IEC website.

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/publications.

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– withdrawn, or

– revised.

## 1 Scope

This document specifies the safety requirements for electro-mechanical interfaces connecting lighting system devices to luminaires. These interfaces are used to mechanically connect, electrically power, and enable communication of lighting system devices on luminaires. Electro-mechanical interfaces up to and including 1 000 V AC or 1 500 V DC are included. This document specifies safety related mechanical, electrical, ambient conditions, and construction requirements for the interface components including protective covers. Specific requirements for the devices that can utilize the interface such as sensors, communication modules, cameras, etc., are not within the scope of this document.

This document does not specify the following aspects:

– the lighting technology,
– the illumination performance,
– data communication,
– functional safety,
– the performance and interchangeability of devices on the interface,
– electromagnetic compatibility (EMC).

This document does not specify safety aspects for the following:

– product safety covered in existing standards (e.g. control gear, light sources, luminaires, electrical connectors, USB);
– device safety aspects for devices using the electro-mechanical interface;
– couplers for mains input power to the luminaire.

This document provides a set of requirements and tests which are considered generally applicable to electro-mechanical interfaces. Detailed requirements for particular electro-mechanical interfaces are specified in the IEC 63494-2 series.

NOTE 1 If the electro-mechanical interface is not standardized in the IEC 63494-2 series, then interchangeability aspects are not covered.

NOTE 2 Although manual operation is anticipated at this time, future use of insertion and removal tools can be utilized and covered by this document.

## 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.

IEC 60320-3, *Appliance couplers for household and similar general purposes - Part 3: Standard sheets and gauges*

IEC 60417, *Graphical symbols for use on equipment*, available at http://www.graphical-symbols.info/equipment

IEC 60598-1:2024, *Luminaires - Part 1: General requirements and tests*

IEC 61032:1997, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61984:2008, *Connectors - Safety requirements and tests*