

# TECHNICAL REPORT

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**Explanation and background information on electrical safety requirements in  
TC 34 standards**

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**Explanation and background information on electrical safety requirements in TC 34 standards**

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IEC TR 63139 has been prepared by IEC technical committee 34: Lighting. It is a Technical Report.

This second edition cancels and replaces the first edition published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) new title and scope to enable the adding of further new subjects to the content of this document in the future;
- b) new [Clause 9](#) providing background information regarding the possible addition of currents in a lighting installation where luminaires are interconnected via their control ports;
- c) new [Clause 10](#) transferring Annex S of [IEC 61347-1:2015 \[1\]](#) (Examples of controlgear insulation coordination) from the controlgear safety standard into this document.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
34/1416/DTR	34/1435/RVDTR

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 Technical Report 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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

## INTRODUCTION

This document provides background information to the following subjects being introduced into IEC TC 34 standards to cover new technologies associated with the use of LED light sources and controllable products.

This document consists of the following subdivisions:

**Clause 4** - Calculation of increased working voltage in case of insulation failure;

**Clause 5** - Insulation between circuits following the circuits analysis in **Clause 6**;

**Clause 7** - Use of protective extra low voltage (PELV);

**Clause 8** - Insulation between LV supply and control line conductors;

**Clause 9** - Summation of touch currents in a connected lighting system;

**Clause 10** - Examples of insulation coordination situations between controlgear and luminaire.

## **1 Scope**

This document provides explanations and background information on electrical safety requirements in TC 34 standards.

## **2 Normative references**

There are no normative references in this document.

## Bibliography

- [1] IEC 61347-1:2015, *Lamp controlgear - Part 1: General and safety requirements*
- [2] IEC 60598-1:2024, *Luminaires - Part 1: General requirements and tests*
- [3] IEC 61347-1:2024, *Controlgear for electric light sources - Safety - Part 1: General requirements*
- [4] IEC 60598-1, *Luminaires - Part 1: General requirements and tests*
- [5] IEC 61347-1, *Controlgear for electric light sources - Safety - Part 1: General requirements*
- [6] IEC 60364-4-41:2005, *Low-voltage electrical installations - Part 4-41: Protection for safety - Protection against electric shock*
- [7] IEC 61558-1:2017, *Safety of transformers, reactors, power supply units and combinations thereof - Part 1: General requirements and tests*
- [8] IEC 61140:2016, *Protection against electric shock - Common aspects for installation and equipment*
- [9] IEC 60449, *Voltage bands for electrical installations of buildings*
- [10] IEC TS 63117, *General requirements for lighting systems - Safety*

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