



IEC TS 63116

Edition 1.1 2023-07
CONSOLIDATED VERSION

TECHNICAL SPECIFICATION



Lighting systems – General requirements

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.140.01; 29.140.50

ISBN 978-2-8322-7324-1

Warning! Make sure that you obtained this publication from an authorized distributor.

REDLINE VERSION



Lighting systems – General requirements



CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 General	6
5 Electrical safety	7
6 Functional safety	7
7 Information security	7
8 Installation, commissioning and maintenance	8
9 Performance and functionality	9
9.1 General.....	9
9.2 Adaptive characteristics	9
9.3 Functionality	9
9.4 Communication protocol.....	9
10 Instructions for use	9
11 Classification of lighting systems	10
11.1 General.....	10
11.2 Lighting system consisting of standalone luminaire(s).....	10
11.3 Autonomous lighting system.....	10
11.4 Centrally controllable lighting system	11
11.5 Typical capacities of lighting systems in different categories.....	11
Annex A (normative) Lighting systems – Reporting of lighting system performance parameters and functionalities	13
A.1 General.....	13
A.2 Adaptive characteristics	13
A.2.1 Sensors	13
A.2.2 Adjustment of light output level	13
A.2.3 Adjustment of light spectrum.....	13
A.2.4 Lighting control functionality	13
A.3 Diagnostics	14
A.4 Communication protocol.....	14
A.5 User interface	14
A.6 Information security measures	14
Bibliography.....	15
Figure 1 – Flow chart for decision of information security measures.....	8
Figure 2 – Example of lighting system consisting of a standalone luminaire	10
Figure 3 – Example of autonomous lighting system.....	11
Figure 4 – Example of centrally controllable lighting system.....	11
Table 1 – Examples of functionalities and characteristics for each category of lighting system.....	12

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIGHTING SYSTEMS – GENERAL REQUIREMENTS

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC TS 63116 edition 1.1 contains the first edition (2021-10) [documents 34/808/DTS and 34/843/RVDTS] and its amendment 1 (2023-07) [documents 34/1010/DTS and 34/1050/RVDTS].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

IEC TS 63116 has been prepared by IEC technical committee 34: Lighting. It is a Technical Specification.

The language used for the development of this Technical Specification 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.

The committee has decided that the contents of this document and its amendment 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.

LIGHTING SYSTEMS – GENERAL REQUIREMENTS

1 Scope

This document specifies general requirements for design, installation and maintenance of a lighting system.

A lighting system comprises a set of products. Requirements of the products are specified in product standards. For the general requirements of lighting systems, this document prevails.

Construction of lighting systems can vary in applications. This document is not intended to provide detailed technical specifications for the construction of lighting systems but to specify requirements in general that are necessary for lighting systems.

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 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

IEC TS 63105, *Lighting systems and related equipment – Vocabulary*

IEC TS 63117, *General requirements for lighting systems – Safety*



IEC TS 63116

Edition 1.1 2023-07
CONSOLIDATED VERSION

FINAL VERSION



Lighting systems – General requirements



CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 General	6
5 Electrical safety	7
6 Functional safety	7
7 Information security	7
8 Installation, commissioning and maintenance	8
9 Performance and functionality	9
9.1 General.....	9
9.2 Adaptive characteristics	9
9.3 Functionality	9
9.4 Communication protocol.....	9
10 Instructions for use	9
11 Classification of lighting systems	10
11.1 General.....	10
11.2 Lighting system consisting of standalone luminaire(s).....	10
11.3 Autonomous lighting system.....	10
11.4 Centrally controllable lighting system	11
11.5 Typical capacities of lighting systems in different categories.....	11
Annex A (normative) Lighting systems – Reporting of lighting system performance parameters and functionalities	13
A.1 General.....	13
A.2 Adaptive characteristics	13
A.2.1 Sensors	13
A.2.2 Adjustment of light output level	13
A.2.3 Adjustment of light spectrum.....	13
A.2.4 Lighting control functionality	13
A.3 Diagnostics	14
A.4 Communication protocol.....	14
A.5 User interface	14
A.6 Information security measures	14
Bibliography.....	15
Figure 1 – Flow chart for decision of information security measures.....	8
Figure 2 – Example of lighting system consisting of a standalone luminaire	10
Figure 3 – Example of autonomous lighting system.....	11
Figure 4 – Example of centrally controllable lighting system.....	11
Table 1 – Examples of functionalities and characteristics for each category of lighting system.....	12

INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIGHTING SYSTEMS – GENERAL REQUIREMENTS

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC TS 63116 edition 1.1 contains the first edition (2021-10) [documents 34/808/DTS and 34/843/RVDTS] and its amendment 1 (2023-07) [documents 34/1010/DTS and 34/1050/RVDTS].

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

IEC TS 63116 has been prepared by IEC technical committee 34: Lighting. It is a Technical Specification.

The language used for the development of this Technical Specification 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.

The committee has decided that the contents of this document and its amendment 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.

LIGHTING SYSTEMS – GENERAL REQUIREMENTS

1 Scope

This document specifies general requirements for design, installation and maintenance of a lighting system.

A lighting system comprises a set of products. Requirements of the products are specified in product standards. For the general requirements of lighting systems, this document prevails.

Construction of lighting systems can vary in applications. This document is not intended to provide detailed technical specifications for the construction of lighting systems but to specify requirements in general that are necessary for lighting systems.

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 62504, *General lighting – Light emitting diode (LED) products and related equipment – Terms and definitions*

IEC TS 63105, *Lighting systems and related equipment – Vocabulary*

IEC TS 63117, *General requirements for lighting systems – Safety*