IEC TS 63116

Edition 1.0 2023-07

TECHNICAL SPECIFICATION

colour inside

AMENDMENT 1

Lighting systems – General requirements

IEC 63116:2021-10/AMD1:2023-07(en)

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC TS 63116

Edition 1.0 2023-07

TECHNICAL SPECIFICATION

colour inside

AMENDMENT 1

Lighting systems – General requirements

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.140.01; 29.140.50

ISBN 978-2-8322-7298-5

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

LIGHTING SYSTEMS – GENERAL REQUIREMENTS

AMENDMENT 1

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to IEC TS 63116:2021 has been prepared by IEC technical committee 34: Lighting.

The text of this Amendment is based on the following documents:

Draft	Report on voting
34/1010/DTS	34/1050/RVDTS

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 Amendment 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/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,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

4 General

Replace, in the last paragraph "Clause 5 to Clause 10" with "Clause 5 to Clause 11".

9 Performance and functionality

9.1 General

Add, at the end of the paragraph, the following new text:

Reporting of such characteristics shall comply with the requirements of Annex A.

9.2 Adaptive characteristics

Replace, in the second bullet list item "(e.g. dimming (flux variation), changing colour and timing)" *with* "(e.g. adjustment of light output level (dimming and brightening), adjustment of light spectrum (colour or correlated colour temperature (CCT) tuning or both) and timing)".

10 Instructions for use

Add, at the end of the first paragraph, the following new paragraph:

All available types and methods of user interfaces to control the lighting systems shall be provided in the instructions for use.

Add, at the end of Clause 10, the following new Clause 11:

11 Classification of lighting systems

11.1 General

According to the system structure, lighting systems can be classified into three categories, as follows:

- lighting systems consisting of standalone luminaire(s);
- autonomous lighting systems;
- centrally controllable lighting systems.

See 11.2 to 11.4 for the description of the different categories.

See 11.5 for the typical capacities of lighting systems in different categories.

11.2 Lighting system consisting of standalone luminaire(s)

A lighting system consisting of a standalone luminaire is a luminaire that does not communicate with other luminaires or a central controller for setting light properties (e.g. on/off, dimming) or for the exchange of information. It can have the capability to communicate with other devices for setting configuration parameters or setting light properties (e.g. on/off, dimming) or exchange of information. An example of a lighting system consisting of one standalone luminaire is shown in Figure 2.

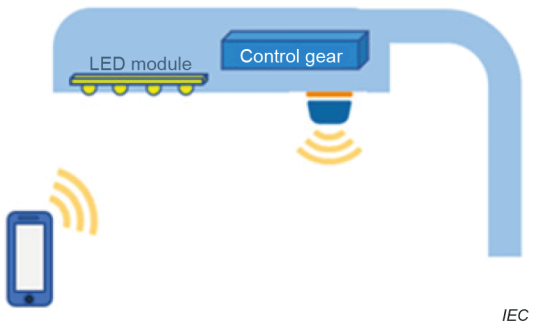

Figure 2 – Example of lighting system consisting of a standalone luminaire

11.3 Autonomous lighting system

The autonomous lighting system consists of two or more luminaires that can communicate with each other for the purpose of adjusting the light properties of the luminaires. This network of luminaires is characterized by having no central control possibilities.

These luminaires have at least one communication network that is intended to exchange information between luminaires to control the light properties. These luminaires can also have the communication capabilities of a standalone luminaire. An example of autonomous lighting system is shown in Figure 3.

Figure 3 – Example of autonomous lighting system

11.4 Centrally controllable lighting system

The centrally controllable lighting system consists of one or more luminaires that can communicate with a central controller and in the case of multiple luminaires, can have the ability to communicate between luminaires directly like in an autonomous lighting system and can have the communication capabilities of a standalone luminaire. An example of centrally controllable lighting system is shown in Figure 4.

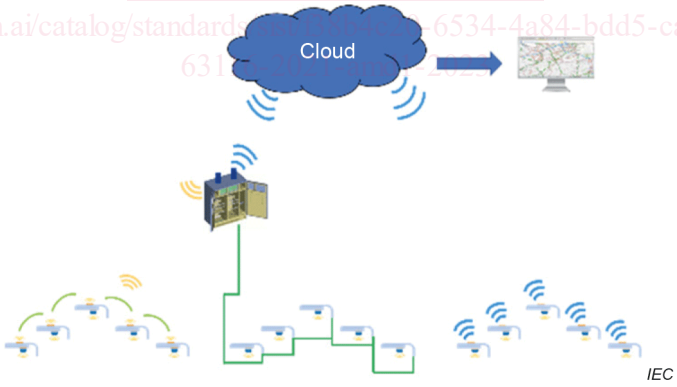

Figure 4 – Example of centrally controllable lighting system

11.5 Typical capacities of lighting systems in different categories

The implementations of adaptive lighting controls and functionalities on lighting systems are specified according to the purpose and environmental conditions of the application. Table 1 gives examples of such functionalities and characteristics for each category of lighting system.

Table 1 – Examples of functionalities and characteristics for each category of lighting system

	Lighting system with standalone luminaire	Autonomous lighting system	Centrally controllable lighting system
Timer-based light control	X	X	X
Sensor-based light control	X	X	X
Group-based light control		X	X
Centrally controllable light control			X
Systems configurable in field	X	X	X
Data exchange on local request	X	X	X
Automatic data exchange with central controller			X
Data exchange with external system			X (optional)

Add, at the end of Clause 11, the following new Annex A:

Annex A
(normative)

Lighting systems – Reporting of lighting system performance parameters and functionalities

A.1 General

The characteristics of products used in lighting systems related to functionality, connectivity and capability shall be presented in the lighting system technical documentation.

A.2 Adaptive characteristics

A.2.1 Sensors

The supported types of sensors for lighting products in the lighting system shall be reported. Such characteristics can include but are not limited to:

- purpose of the sensor(s);
- type of sensor(s);
- sensor technology(ies).

A.2.2 Adjustment of light output level

If applicable, the dimming methods and dimming range of lighting products in the lighting system shall be reported. Such dimming characteristics can include but are not limited to:

- continuous dimming;
- stepped dimming;
- scene selection;
- dimming curve;
- dimming range.

A.2.3 Adjustment of light spectrum

If applicable, the full colour changing or white CCT tuning range of lighting products in the lighting system shall be reported. Such characteristics can include but are not limited to:

- colour tuning;
- white CCT tuning;
- colour shift dimming (e.g. dim-to-warm);
- default setting;
- tuning range or setting;
- colour tuning protocol.

A.2.4 Lighting control functionality

If applicable, the lighting control of lighting products in the lighting system shall be reported. Such characteristics can include but are not limited to:

- individual control (device addressability);
- group control (device addressability);
- daylight harvesting;
- scene control;
- scheduling.

A.3 Diagnostics

If applicable, the functions related to diagnostics of lighting products shall be reported. Such characteristics can include but are not limited to:

- fault detection;
- device status monitoring;
- light level detection;
- light degradation compensation;
- remote monitoring;
- occupancy monitoring;
- energy consumption monitoring and reporting.

A.4 Communication protocol

The supported types of communication protocol for lighting products in the lighting system shall be reported. Such characteristics can include but are not limited to:

- supported communication protocol and version;
- type of networks.

A.5 User interface

If applicable, the types of user interface for lighting products in the lighting system shall be reported. Such characteristics can include but are not limited to:

- software application;
- wall panel;
- switch;
- other input devices.

A.6 Information security measures

If applicable, the characteristics of the information security aspects of lighting products shall be reported. Such characteristics can include but are not limited to:

- existence of information security measures;
- standards compliance for information security;
- certification for information security.

_____