

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



---

**Digital addressable lighting interface –  
Part 207: Particular requirements for control gear – LED modules (device type 6)**

**Interface d'éclairage adressable numérique –  
Partie 207: Exigences particulières pour les appareillages de commande –  
Modules de LED (dispositifs de type 6)**



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2018 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://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 corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [webstore.iec.ch/advsearchform](http://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](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://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](mailto:sales@iec.ch).

---

### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

#### Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

#### Recherche de publications IEC - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

#### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

#### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



---

**Digital addressable lighting interface –  
Part 207: Particular requirements for control gear – LED modules (device type 6)**

**Interface d'éclairage adressable numérique –  
Partie 207: Exigences particulières pour les appareillages de commande –  
Modules de LED (dispositifs de type 6)**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

---

ICS 29.140.50; 29.140.99

ISBN 978-2-8322-5500-1

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references .....	8
3 Terms and definitions .....	9
4 General .....	9
4.1 General.....	9
4.2 Version number .....	9
5 Electrical specification.....	9
6 Interface power supply .....	9
7 Transmission protocol structure.....	9
8 Timing .....	9
9 Method of operation.....	9
9.1 General.....	9
9.2 Fast fade time.....	9
9.3 Dimming curve.....	10
9.3.1 General .....	10
9.3.2 Dimming curve when IEC 62386-218 is implemented.....	11
9.3.3 Dimming curve when IEC 62386-218 is not implemented.....	11
9.4 Load deviation .....	11
9.5 Thermal protection.....	12
9.5.1 General .....	12
9.5.2 Thermal gear protection.....	12
9.5.3 Thermal lamp protection .....	12
9.5.4 Behaviour of thermal protection .....	12
9.6 Features information .....	13
9.7 Failure status information.....	13
9.8 LED module integrated .....	13
10 Declaration of variables.....	14
11 Definition of commands .....	15
11.1 General.....	15
11.2 Overview sheets .....	15
11.3 Application extended commands.....	17
11.3.1 General .....	17
11.3.2 Configuration instructions .....	17
11.3.3 Queries .....	18
11.4 Special commands.....	19
11.4.1 General .....	19
11.4.2 ENABLE DEVICE TYPE ( <i>data</i> ).....	19
Bibliography.....	20
Figure 1 – IEC 62386 graphical overview .....	6
Table 1 – Fast fade times .....	10

Table 2 – Control gear features ..... 13

Table 3 – Control gear failure status ..... 13

Table 4 – Control gear type ..... 14

Table 5 – Declaration of variables..... 14

Table 6 – Application extended commands for this device type ..... 15

# INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

## DIGITAL ADDRESSABLE LIGHTING INTERFACE –

### Part 207: Particular requirements for control gear – LED modules (device type 6)

#### 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.

International Standard IEC 62386-207 has been prepared by IEC technical committee 34: Lamps and related equipment.

This second edition cancels and replaces the first edition published in 2009. This edition constitutes a technical revision.

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

- a) fast fade time has been redefined;
- b) short circuit and open circuit have been deleted;
- c) physical selection has been deleted;
- d) dimming curve selection has been moved to a separate part;

- e) load increase, load decrease and reference measurement have been moved to a separate part;
- f) thermal gear and lamp protection have been moved to separate parts;
- g) LED module integrated has been moved to a separate part;
- h) link to IEC 62386-102 error bits has been clarified;
- i) the following commands have been deleted:
  - ENABLE CURRENT PROTECTOR
  - DISABLE CURRENT PROTECTOR
  - QUERY POSSIBLE OPERATING MODES
  - QUERY SHORT CIRCUIT
  - QUERY OPEN CIRCUIT
  - QUERY CURRENT PROTECTOR ACTIVE
  - QUERY CURRENT PROTECTOR ENABLED
  - QUERY OPERATING MODE

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

FDIS	Report on voting
34/483/FDIS	34/504/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 207 of IEC 62386 is intended to be used in conjunction with:

- Part 101, which contains general requirements for system components;
- Part 102, which contains general requirements for control gear.

A list of all parts in the IEC 62386 series, published under the general title: *Digital addressable lighting interface*, 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 “<http://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.**

## INTRODUCTION

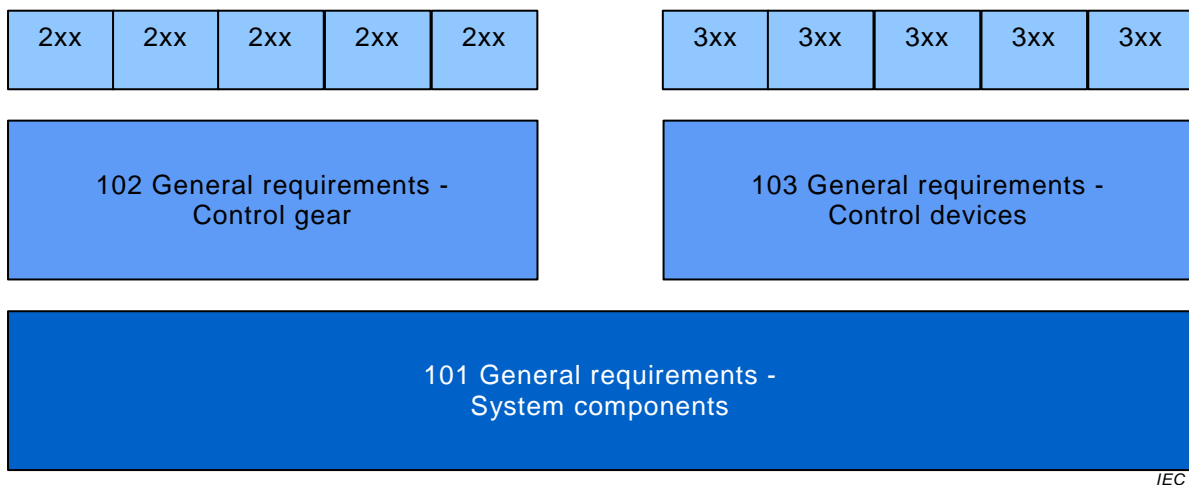
IEC 62386 contains several parts, referred to as series. The 1xx series includes the basic specifications. Part 101 contains general requirements for system components, Part 102 extends this information with general requirements for control gear and Part 103 extends it further with general requirements for control devices.

The 2xx parts extend the general requirements for control gear with lamp specific extensions (mainly for backward compatibility with Edition 1 of IEC 62386) and with control gear specific features.

The 3xx parts extend the general requirements for control devices with input device specific extensions describing the instance types as well as some common features that can be combined with multiple instance types.

This second edition of IEC 62386-207 is intended to be used in conjunction with IEC 62386-101:2014, IEC 62386-101:2014/AMD1:—, IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, and with the various parts that make up the IEC 62386-2xx series for control gear. The division into separately published parts provides for ease of future amendments and revisions. Additional requirements will be added as and when a need for them is recognized.

The setup of the standards is graphically represented in Figure 1 below.



**Figure 1 – IEC 62386 graphical overview**

This document, and the other parts that make up the IEC 62386-200 series, in referring to any of the clauses of IEC 62386-1XX, specifies the extent to which such a clause is applicable; the parts also include additional requirements, as necessary.

Where the requirements of any of the clauses of IEC 62386-1XX are referred to in this document by the sentence “The requirements of IEC 62386-1XX, Clause “n” apply”, this sentence is to be interpreted as meaning that all requirements of the clause in question of Part 1XX apply, except any which are clearly inapplicable.

The standardization of the control interface for control gear is intended to achieve compatible co-existence between electronic control gear and lighting control devices, below the level of building management systems. This document describes a method of implementing control gear.

All numbers used in this document are decimal numbers unless otherwise noted.



Hexadecimal numbers are given in the format 0xVV, where VV is the value. Binary numbers are given in the format XXXXXXXXb or in the format XXXX XXXX, where X is 0 or 1, "x" in binary numbers means "don't care".

The following typographic expressions are used:

Variables: *variableName* or *variableName[3:0]*, giving only bits 3 to 0 of *variableName*

Range of values: [lowest, highest]

Command: "COMMAND NAME"

# DIGITAL ADDRESSABLE LIGHTING INTERFACE –

## Part 207: Particular requirements for control gear – LED modules (device type 6)

### 1 Scope

This part of IEC 62386 specifies a bus system for control by digital signals of electronic lighting equipment which is in line with the requirements of IEC 61347 (all parts), with the addition of DC supplies.

This document is only applicable to IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:— control gear associated with LED modules.

NOTE Requirements for testing individual products during production are not included.

### 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 62386-101:2014, *Digital addressable lighting interface – Part 101: General requirements – System components*  
IEC 62386-101:2014/AMD1:—<sup>1</sup>

IEC 62386-102:2014, *Digital addressable lighting interface – Part 102: General requirements – Control gear*  
IEC 62386-102:2014/AMD1:—<sup>2</sup>

IEC 62386-216:—<sup>3</sup>, *Digital addressable lighting interface – Part 216: Particular requirements for control gear – Load referencing (device type 15)*

IEC 62386-217:2018, *Digital addressable lighting interface – Part 217: Particular requirements for control gear – Thermal gear protection (device type 16)*

IEC 62386-218:2018, *Digital addressable lighting interface – Part 218: Particular requirements for control gear – Dimming curve selection (device type 17)*

IEC 62386-222:2018, *Digital addressable lighting interface – Part 222: Particular requirements for control gear – Thermal lamp protection (device type 21)*

IEC 62386-224:2018, *Digital addressable lighting interface – Part 224: Particular requirements for control gear – Non-replaceable light source (device type 23)*

---

<sup>1</sup> Under preparation. Stage at the time of publication: IEC TPUB 62386-101/AMD1:2018.

<sup>2</sup> Under preparation. Stage at the time of publication: IEC TFDIS 62386-102/AMD1:2018.

<sup>3</sup> Under preparation. Stage at the time of publication: IEC BPUB 62386-216:2018.