

Digital addressable lighting interface - Part 202:
Particular requirements for control gear -
Self-contained emergency lighting (device type 1)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 62386-202:2023 sisaldab Euroopa standardi EN IEC 62386-202:2023 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 62386-202:2023 consists of the English text of the European standard EN IEC 62386-202:2023.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.02.2023.	Date of Availability of the European standard is 03.02.2023.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.140.50, 29.140.99

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis-ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardimis-ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Digital addressable lighting interface - Part 202: Particular
requirements for control gear - Self-contained emergency
lighting (device type 1)
(IEC 62386-202:2022)

Interface d'éclairage adressable numérique - Partie 202:
Exigences particulières pour les appareillages de
commande - Blocs autonomes d'éclairage de secours
(dispositifs de type 1)
(IEC 62386-202:2022)

Digital adressierbare Schnittstelle für die Beleuchtung - Teil
202: Besondere Anforderungen an Betriebsgeräte -
Notbeleuchtung mit Einzelbatterie (Gerätetyp 1)
(IEC 62386-202:2022)

This European Standard was approved by CENELEC on 2023-01-19. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 34/986/FDIS, future edition 2 of IEC 62386-202, prepared by IEC/TC 34 "Lighting" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62386-202:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-10-19
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-01-19

This document supersedes EN 62386-202:2009 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62386-202:2022 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60598-2-22:2021	NOTE	Approved as EN IEC 60598-2-22:2022 (not modified)
IEC 61347-1:2015	NOTE	Approved as EN 61347-1:2015 (not modified)
IEC 61347-2-7:2011	NOTE	Approved as EN 61347-2-7:2012 (not modified)
IEC 62034:2012	NOTE	Approved as EN 62034:2012 (not modified)
IEC 62386-220	NOTE	Approved as EN IEC 62386-220

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Digital addressable lighting interface –
Part 202: Particular requirements for control gear – Self-contained emergency
lighting (device type 1)**

**Interface d'éclairage adressable numérique –
Partie 202: Exigences particulières pour les appareillages de commande –
Blocs autonomes d'éclairage de secours (dispositifs de type 1)**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2022 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 Secretariat
3, rue de Varembe
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.

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.

Recherche de publications IEC - 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

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

Service Clients - 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.

IEC Products & Services Portal - products.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 300 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 19 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Digital addressable lighting interface –
Part 202: Particular requirements for control gear – Self-contained emergency
lighting (device type 1)**

**Interface d'éclairage adressable numérique –
Partie 202: Exigences particulières pour les appareillages de commande –
Blocs autonomes d'éclairage de secours (dispositifs de type 1)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 29.140.50; 29.140.99

ISBN 978-2-8322-6212-2

**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.....	5
INTRODUCTION.....	7
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	9
4 General.....	12
4.1 General.....	12
4.2 Version number	12
4.3 Power supply of bus units	12
4.4 Power interruption at bus units.....	13
4.4.1 General	13
4.4.2 Power interruptions of external power supply.....	13
4.4.3 Communication requirements in rest mode and emergency mode.....	13
4.4.4 Endurance of REST MODE.....	13
5 Electrical specification	13
6 Interface power supply	13
7 Transmission protocol structure.....	13
8 Timing	14
9 Method of operation.....	14
9.1 General.....	14
9.2 Command execution	14
9.3 Non-controllable control gear	14
9.3.1 General	14
9.3.2 Command execution of non-controllable control gear.....	14
9.3.3 Status bits of non-controllable control gear.....	15
9.4 Emergency level	15
9.4.1 General	15
9.4.2 Emergency operation light output and emergency level	15
9.4.3 Emergency physical maximum and minimum level.....	15
9.4.4 Configuring emergency level.....	16
9.4.5 Testing of emergency level.....	16
9.5 Mode transition timing and behaviour.....	16
9.6 System failure	18
9.7 Modes of operation	18
9.7.1 General	18
9.7.2 Normal mode	19
9.7.3 Inhibit mode.....	20
9.7.4 Emergency mode.....	21
9.7.5 Extended emergency mode.....	22
9.7.6 Rest mode	23
9.7.7 Mode 'Function test in progress'	24
9.7.8 Mode 'Duration test in progress'	25
9.7.9 Mode 'Battery cut-off'.....	27
9.8 Emergency test functions and configuration	27
9.8.1 General	27
9.8.2 Automatic testing.....	27

9.8.3	Automatic test execution status	30
9.8.4	Querying test results	31
9.8.5	Extended test duration	31
9.8.6	Timing definitions	32
9.9	Protection functionalities in emergency mode	33
9.10	Emergency mode and operating modes	33
9.11	Hardwired emergency inputs	33
9.11.1	General	33
9.11.2	Hardwired inhibit input	33
9.11.3	Hardwired switch	33
9.12	Control gear status and capabilities	34
9.12.1	General	34
9.12.2	Modification to "lampOn"	34
9.12.3	Rated duration and battery charge	34
9.12.4	Emergency status	34
9.12.5	Emergency mode	35
9.12.6	Emergency features	36
9.12.7	Emergency failure status	37
9.12.8	Hardwired switch status	38
9.12.9	Emergency lamp operation time	38
9.13	Restricting device type support	39
9.14	Installation inhibit	39
9.15	Memory banks	39
9.15.1	General	39
9.15.2	Accuracy of measurements	39
9.15.3	Rounding of measurement values	39
9.15.4	Refresh rate of memory bank values	40
9.15.5	No overflow of counters	40
9.15.6	Memory bank 208: Emergency control gear information	40
10	Declaration of variables	45
10.1	General	45
10.2	Impact on control gear variables depending on control gear type	45
10.3	Control gear variables for all self-contained control gear	46
11	Definition of commands	47
11.1	General	47
11.2	Overview sheets	47
11.3	Level instructions	50
11.4	Configuration instructions	50
11.4.1	General	50
11.4.2	IDENTIFY DEVICE	50
11.5	Queries	50
11.5.1	General	50
11.5.2	QUERY ACTUAL LEVEL	50
11.6	Application extended commands	50
11.6.1	General	50
11.6.2	Configuration instructions	51
11.6.3	Queries	55
11.7	Special commands	58
11.7.1	General	58

11.7.2	ENABLE DEVICE TYPE (<i>data</i>)	58
Annex A (informative)	Enabling or re-enabling installation inhibit	59
A.1	General	59
A.2	Re-enabling installation inhibit	59
A.3	Modifying or cancelling installation inhibit operation	59
Bibliography		60
Figure 1	– IEC 62386 graphical overview	7
Figure 2	– Modes and transitions	19
Figure 3	– Timing diagram for function and duration tests	28
Figure 4	– Duration test execution time out example	31
Table 1	– Mode transition behaviour	17
Table 2	– Bus power interruption behaviour	18
Table 3	– Normal mode	20
Table 4	– Inhibit mode	21
Table 5	– Emergency mode	22
Table 6	– Extended emergency mode	23
Table 7	– Rest mode	24
Table 8	– Mode 'Function test in progress'	25
Table 9	– Mode 'Duration test in progress'	26
Table 10	– Mode 'Battery cut-off'	27
Table 11	– " <i>extendedDuration</i> "	32
Table 12	– Timing definitions	32
Table 13	– " <i>emergencyStatus</i> "	35
Table 14	– " <i>emergencyMode</i> "	36
Table 15	– " <i>emergencyFeatures</i> "	36
Table 16	– " <i>emergencyFailureStatus</i> "	37
Table 17	– " <i>hardwiredSwitchStatus</i> "	38
Table 18	– Memory bank 208: Self-contained emergency control gear information	40
Table 19	– Modifications of control gear variables	45
Table 20	– Declaration of additional variables	46
Table 21	– Application extended commands	48
Table 22	– Perform DTR selected function	55
Table 23	– Query selected variable	56

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –**Part 202: Particular requirements for control gear –
Self-contained emergency lighting (device type 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) 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.

IEC 62386-202 has been prepared by IEC technical committee 34: Lighting. It is an International Standard.

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) scope updated,
- b) hardwired switch operation can be disabled,
- c) installation inhibit feature added,
- d) memory bank added,
- e) modes of operation clarified, with some changes and additions,
- f) command added to enter extended emergency mode,

g) command added to extend time in duration test mode.

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

Draft	Report on voting
34/986/FDIS	34/1000/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.

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.

This Part 202 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 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 IEC 62386 series specifies a bus system for control by digital signals of electronic lighting equipment. The IEC 62386-1xx 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. Part 104 and Part 105 can be applied to control gear or control devices. Part 104 gives requirements for wireless and alternative wired system components. Part 105 describes firmware transfer. Part 150 gives requirements for an auxiliary power supply which can be stand-alone, or built into control gear or control devices.

The IEC 62386-2xx series extends 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 IEC 62386-3xx series extends 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 62386-202 is intended to be used in conjunction with IEC 62386-101 and IEC 62386-102 and with the various parts that make up the IEC 62386-2xx series for control gear, and can be used together with IEC 62386-103 and the various parts that make up the IEC 62386-3xx series of particular requirements for control devices. 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 recognised.

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

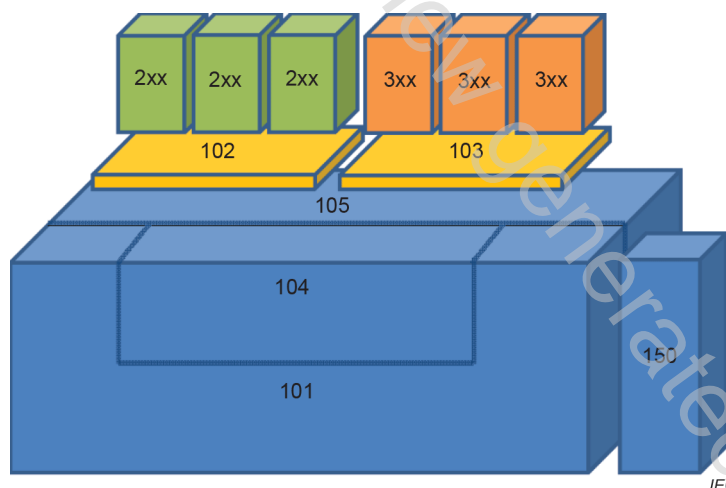


Figure 1 – IEC 62386 graphical overview

When this part of IEC 62386 refers to any of the clauses of the IEC 62386-1xx series, the extent to which such a clause is applicable is specified. The other parts also include additional requirements, as necessary.

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 and "x" in binary numbers means "don't care". Where a variable is referred by a bit number, bit 0 is the least significant bit.

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 202: Particular requirements for control gear – Self-contained emergency lighting (device type 1)

1 Scope

This part of IEC 62386 is applicable to control gear for control by digital signals of electronic lighting equipment which is associated with self-contained emergency lighting as described in IEC 61347-2-7 with additional control interface for configuring emergency operation.

This document is only applicable to control gear complying with IEC 62386-102.

This document does not apply to centrally supplied emergency lighting control gear, which is specified in IEC 62386-220.

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 62386-101:2022, *Digital addressable lighting interface – Part 101: General requirements – System components*

IEC 62386-102:2022, *Digital addressable lighting interface – Part 102: General requirements – Control gear*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 62386-101 and IEC 62386-102 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

battery cut-off

mode of operation in which the normal supply is disconnected and the battery voltage is below the battery cut-off voltage

Note 1 to entry: Reaching this point can trigger the device to protect against extensive discharge as defined in IEC 61347-2-7:2011, 3.4 and IEC 61347-2-7:2011/AMD2:2021, 3.4.

3.2

battery cut-off voltage

battery voltage, below which the battery can no longer power the control gear or lamp(s)