

INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

**Interface d'éclairage adressable numérique –
Partie 218: Exigences particulières pour les appareillages de commande –
Sélection de la courbe de gradation (dispositifs de type 17)**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –**Part 218: Particular requirements for control gear –
Dimming curve selection (device type 17)**

FOREWORD

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International Standard IEC 62386-218 has been prepared by IEC technical committee 34: Lamps and related equipment.

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

FDIS	Report on voting
34/482/FDIS	34/506/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 218 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 web site under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
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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 first edition of IEC 62386-218 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:—. 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.

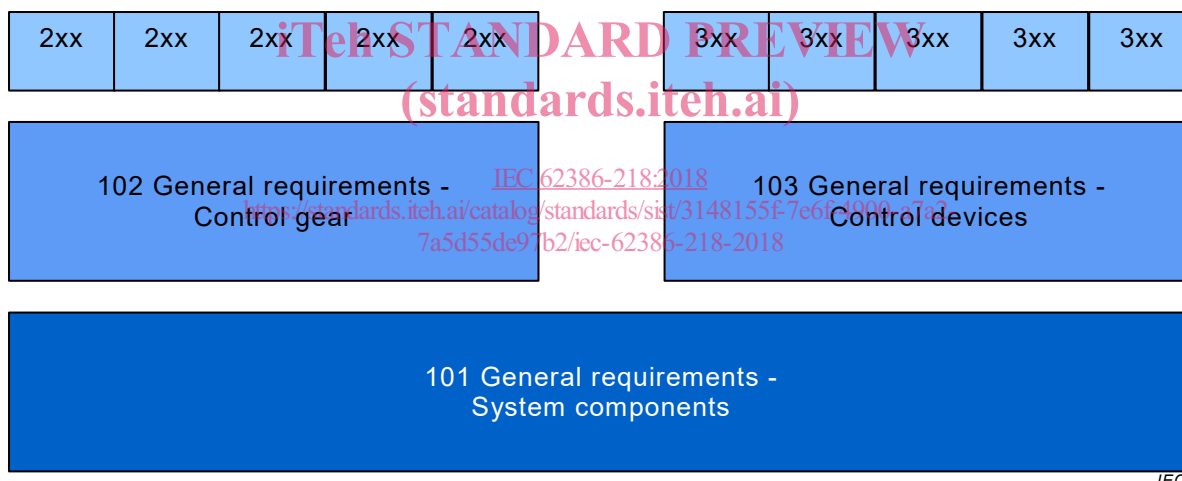


Figure 1 – IEC 62386 graphical overview

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 and "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"

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DIGITAL ADDRESSABLE LIGHTING INTERFACE –

Part 218: Particular requirements for control gear – Dimming curve selection (device type 17)

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 that implements dimming curve selection.

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:—¹ [IEC 62386-218:2018](https://standards.iteh.ai/catalog/standards/sist/3148155f-7e6f-4900-a7a2-7a5d55de97b2/iec-62386-218-2018)
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IEC 62386-102:2014, *Digital addressable lighting interface – Part 102: General requirements – Control gear*

IEC 62386-102:2014/AMD1:—²

3 Terms and definitions

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

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

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

4 General

4.1 General

The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 4 apply, with the restrictions, changes and additions identified below.

¹ Under preparation. Stage at the time of publication: IEC CCDV 62386-101/AMD1:2018.

² Under preparation. Stage at the time of publication: IEC CCDV 62386-102/AMD1:2018.

4.2 Version number

In 4.2 of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, 102 shall be replaced by “218”, “version number” shall be replaced by “extended version number” and “*versionNumber*” shall be replaced by “*extendedVersionNumber*”.

5 Electrical specification

The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 5 apply.

6 Interface power supply

The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 6 apply.

7 Transmission protocol structure

The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 7 apply.

8 Timing

The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 8 apply.

9 Method of operation (standards.iteh.ai)

9.1 General

IEC 62386-218:2018

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The requirements of IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—, Clause 9 apply, with the following restrictions and additions.

9.2 Dimming curves

9.2.1 General

The dimming curve can be set using “SELECT DIMMING CURVE (*DTR0*)” and can be queried using “QUERY DIMMING CURVE”.

“SELECT DIMMING CURVE (*DTR0*)SELECT DIMMING CURVE” shall set “*dimmingCurve*” as follows:

- if “*DTR0*” > 1: no change;
- in all other cases: “*DTR0*”.

The answer to “QUERY DIMMING CURVE” shall be “*dimmingCurve*”.

The selected dimming curve shall be according to Table 1:

Table 1 – Dimming curves

<i>“dimmingCurve”</i>	Dimming curve
0	Standard dimming curve
1	Linear dimming curve

9.2.2 Standard dimming curve

The standard dimming curve is the dimming curve as defined in IEC 62386-102:2014 and IEC 62386-102:2014/AMD1:—.

9.2.3 Linear dimming curve

If the linear dimming curve is selected, an *“actualLevel”* greater than or equal to 1 and less than or equal to 254 shall be translated into light output according to

$$\text{Light output (actualLevel)} = \frac{\text{actualLevel}}{254} \times 100\%$$

The light output is expressed relative to the maximum possible light output of a given control gear-lamp combination. The dimming curve starts at 0,39 % for *“actualLevel”* equal to 0x01 and ends at 100 % for *“actualLevel”* equal to 0xFE. The dimming curve is strictly monotonic, and the relative accuracy shall be ±½ step. This shall be tested using a fade, excluding the physical minimum level (PHM). IEC 62386-218:2018

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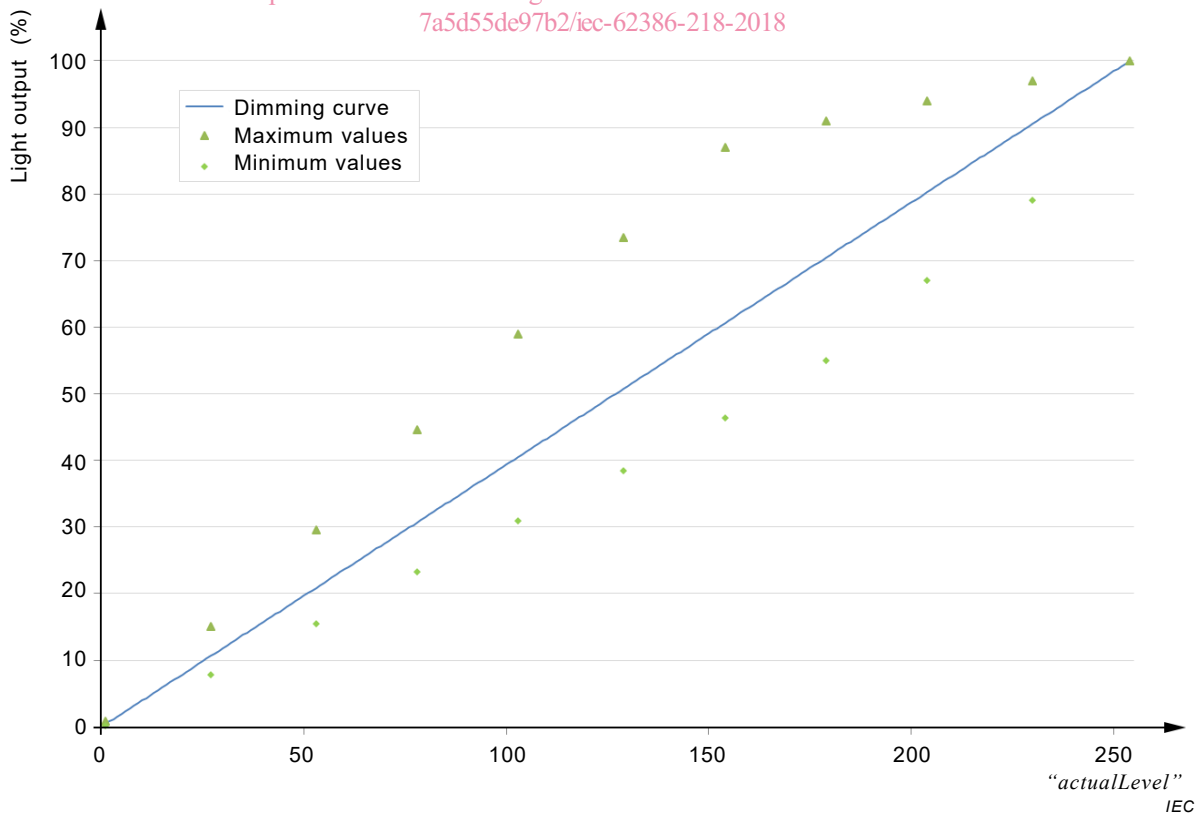


Figure 2 – Dimming curve

The accuracy of light output is specified by the test points given in Table 2. The test points of Table 2 and the dimming curve are depicted in Figure 2, and Table 3 shows the light output versus the level. The lamp type or load used during testing shall be stated for reproducibility.

Table 2 – Linear dimming curve tolerance (% , rounded to two decimals)

Level	1	26	51	77	102	127	153	178	204	229	254
Minimum value	0,20	8	15	23	31	39	46	55	67	79	
Nominal value	0,394	10,236	20,079	30,315	40,157	50,00	60,236	70,079	80,315	90,157	100,00
Maximum value	0,79	15,05	29,52	44,56	59,03	73,50	87,00	91	94	97	

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