

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Digital addressable lighting interface –
Part 251: Particular requirements – Memory bank 1 extension (device type 50)**

**Interface d'éclairage adressable numérique –
Partie 251: Exigences particulières – Extension du bloc de mémoire 1 (type de
dispositif 50)**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL ADDRESSABLE LIGHTING INTERFACE –**Part 251: Particular requirements –
Memory bank 1 extension (device type 50)**

FOREWORD

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IEC 62386-251 has been prepared by IEC technical committee 34: Lighting. It is an International Standard.

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

Draft	Report on voting
34/1019/FDIS	34/1040/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 251 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- withdrawn,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.

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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 first edition of IEC 62386-251 is intended to be used in conjunction with IEC 62386-101:2022 and IEC 62386-102:2022. The division of IEC 62386 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.

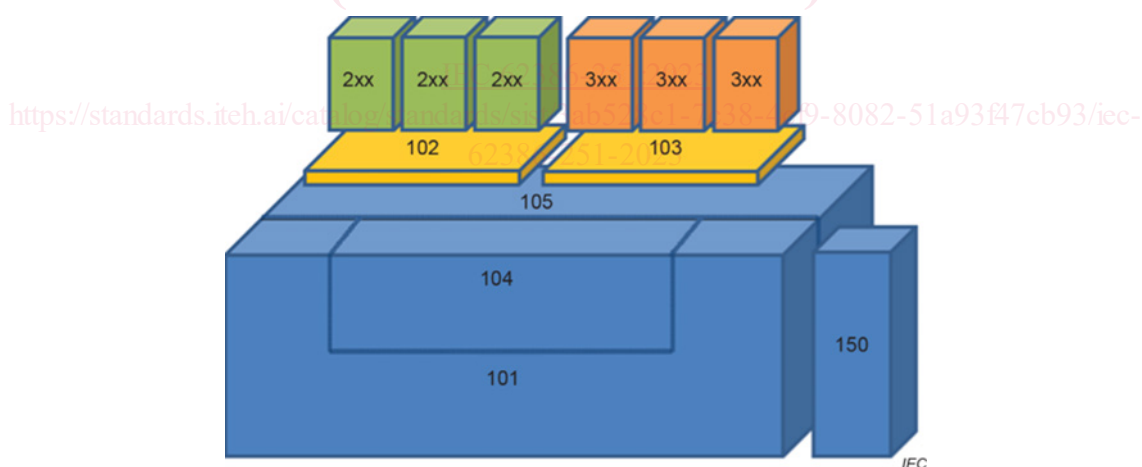


Figure 1 – IEC 62386 graphical overview

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; "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 251: Particular requirements – Memory bank 1 extension (device type 50)

1 Scope

This part of IEC 62386 specifies an extension to memory bank 1 to enable asset management functionality. This document builds on the digital addressable lighting interface as specified in the IEC 62386 series.

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

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*

ANSI/IES RP-8-18:2018: *American National Standard Recommended Practice for Design and Maintenance of Roadway and Parking Facility Lighting*

3 Terms and definitions

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

ISO and IEC maintain terminology 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 62386-102:2022, Clause 4 apply, with the restrictions, changes and additions identified below.

4.2 Version number

In IEC 62386-102:2022, 4.2, "102" shall be replaced by "251", "version number" shall be replaced by "extended version number" and "*versionNumber*" shall be replaced by "*extendedVersionNumber*".

5 Electrical specification

The requirements of IEC 62386-102:2022, Clause 5 apply.

6 Bus power supply

The requirements of IEC 62386-102:2022, Clause 6 apply.

7 Transmission protocol structure

The requirements of IEC 62386-102:2022, Clause 7 apply.

8 Timing

The requirements of IEC 62386-102:2022, Clause 8 apply.

9 Method of operation

9.1 General

IEC 62386-102 defines memory bank 1 for basic luminaire information. This document expands memory bank 1 to enable asset management functionality.

9.2 Memory banks

9.2.1 General

The requirements of IEC 62386-102:2022, 9.10 apply with the following additions and changes.

9.2.2 Memory bank writing

All writable memory locations other than location 0x02 shall be lockable.

For memory bank 1, the permitted range of values for writing is [0, 0xFF], for all locations with memory type NVM-RW. For memory locations showing a range, values outside of this range are undefined.

9.2.3 Memory bank 1

Memory bank 1, as shown in Table 1, is reserved for use by an original equipment manufacturer (OEM), e.g. a luminaire manufacturer, to store additional information about the luminaire, which has no impact on the functionality of the control gear. The control gear manufacturer shall implement at least the memory locations up to and including address 0x77.

Memory bank 1 shall be implemented in all logical units and shall be common across all logical units. A change of value in any location in this bank shall result in the same value in the same location of this bank in all logical units.

Table 1 – Memory bank 1, luminaire information

Address	Description	Default value (factory)	Reset value ^a	Memory type
0x00	Address of last accessible memory location; Range [0x77,0xFE]	Factory burn-in	No change	ROM
0x01	Indicator byte	Manufacturer-specific	Manufacturer-specific	Manufacturer-specific
0x02	Lock byte Lockable bytes in the memory bank shall be read-only while the lock byte has a value different from 0x55.	0xFF	0xFF ^b	RAM-RW
[0x03, 0x08]	Luminaire manufacturer GTIN with company prefix to derive manufacturer name	0xFF	No change	NVM-RW (protectable) ^c
[0x09, 0x10]	Luminaire identification number	0xFF	No change	NVM-RW (protectable) ^c
0x11	Content format ID ^d (MSB)	0x00	No change	NVM-RW (protectable) ^c
0x12	Content format ID ^d (LSB)	0x03	No change	NVM-RW (protectable) ^c
0x13	Luminaire year of manufacture [YY] [0, 99] = YY; [100, MASK] = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x14	Luminaire week of manufacture [WW] [1, 53] = WW; 0,[54, MASK] = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x15	Nominal input power [W] (MSB)	0xFF	No change	NVM-RW (protectable) ^c
0x16	Nominal input power [W] (LSB); [0, MASK-1] = power; MASK = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x17	Power at minimum dim level [W] (MSB)	0xFF	No change	NVM-RW (protectable) ^c
0x18	Power at minimum dim level [W] (LSB); [0, MASK-1] = power; MASK = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x19	Nominal minimum AC mains voltage [V] (MSB)	0xFF	No change	NVM-RW (protectable) ^c
0x1A	Nominal minimum AC mains voltage [V] (LSB); [90, 480] = voltage; [0, 89], [481, MASK] = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x1B	Nominal maximum AC mains voltage [V] (MSB)	0xFF	No change	NVM-RW (protectable) ^c
0x1C	Nominal maximum AC mains voltage [V] (LSB); [90, 480] = voltage; [0, 89], [481, MASK] = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x1D	Nominal light output [Lm] (MSB)	0xFF	No change	NVM-RW (protectable) ^c
0x1E	Nominal light output [Lm]	0xFF	No change	NVM-RW (protectable) ^c
0x1F	Nominal light output [Lm] (LSB); [0, MASK-1] = light output; MASK = unknown	0xFF	No change	NVM-RW (protectable) ^c
0x20	CRI ^e [0, 100] = CRI; [101, MASK] = unknown	0xFF	No change	NVM-RW (protectable) ^c